



Program Review - Overall Report

2024 - 2027

Instructional: Electrician (ELC)

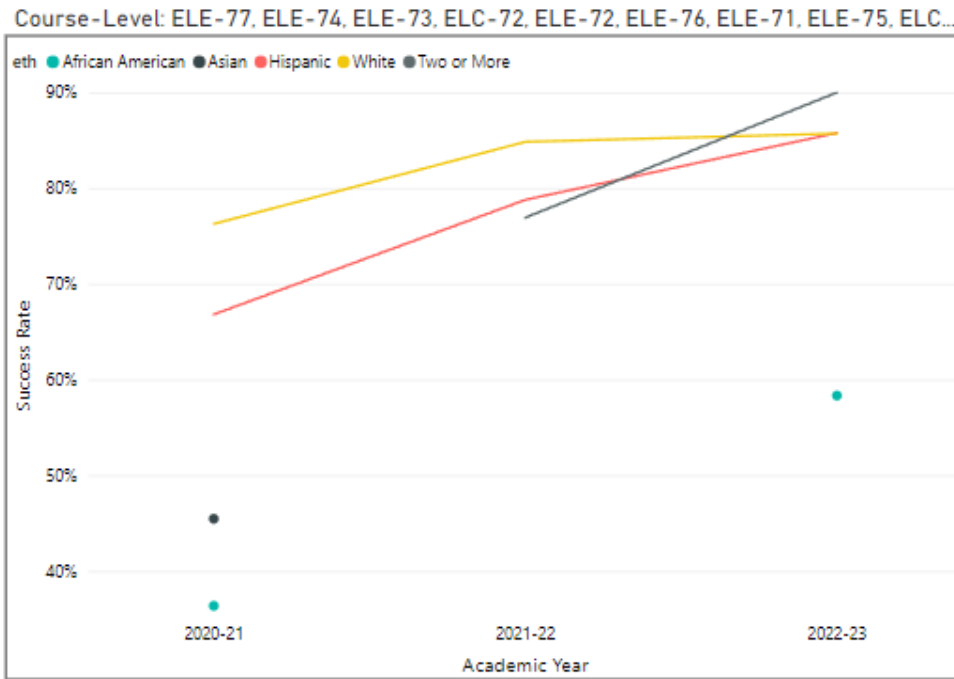
Overall Trends

What overall trends do you see in success, retention, program of study, educational planning, and awards over the past 3 or more years?

Data Narrative Template

Overall, students in ELC and ELE courses have been increasing from 65.7% to 84.7% in success and about the same from 85.9% to 90.6% in retention over the past 3 years.

Success Rate = # of A-C grades/# of all other notations (%)



In terms of student subgroups in ELC & ELE courses, the Male African American are showing gaps in success that are concerning. Last year, there was only a 58.3% Success Rate while the overall Success rate was 83.6%.

The number of students who had NO EDUCATIONAL PLAN stayed flat during the last three years (73.28% to 72.36% to 86.1%).

During the last 3 years, the number of students who obtained an Electrician Certificate was 16, 13, and 13. The number of degrees with an Electrician certificate was 5, 7, and 1. This number seems low. Most electrician courses are fu with each

Data Review

having 30 students. These numbers indicated that most students do not complete the program. Historically, students become employed before they complete the program. This indicates that the demand is high. Possible solutions is to break up the certificate into three courses each. Each course would correspond to a specific specialty.

Please add any relevant documents here.

Disaggregated Student Subgroups

Look at the disaggregated student subgroups in success, retention, program of study, educational planning, and awards for your area. Are there any equity gaps that you will address in the next 3 years?

In terms of student subgroups in ELC & ELE courses, the Male African American are showing gaps in success that are concerning. Last year, there was only a 58.3% Success Rate while the overall Success rate was 83.6%.

The data shows that there were 12 and 11 Male African American enrolled during the last three years.

The census shows that the African American population in Riverside County is 7.5% (<https://www.census.gov/quickfacts/fact/table/riversidecountycalifornia,sanbernardinocountycalifornia/AFN120217>).

According to our data for last year, the electrician program had 12/273 African American students enrolled. This is 4.4%

We must do more to increase the Male African American enrollment. We can campaign to Emoji and other groups that are serving this population.

If there are any concerning trends over the past 3 or more years, or if equity gaps exist, what is your action plan to address them?

Yes. The other concerns is the female gap. This industry is predominately male. We will strive to make females welcomed and show them that there are many females in this industry. Ai reports:

Here are some reasons why electrical work can be a good fit for women:

- **There is a demand for skilled workers.** The Bureau of Labor Statistics projects that employment of electricians will grow by 8% from 2022 to 2032, much faster than the average for all occupations.
- **The pay is good.** Electricians earn a median wage of \$59,040 per year.
- **The work is varied.** Electricians can work in a variety of settings, including residential, commercial, and industrial. They can also specialize in different areas, such as wiring, lighting, or controls.
- **The work is challenging and rewarding.** Electricians use their skills to solve problems and keep electrical systems safe and functioning properly.

Please add any relevant documents here.

Electrician Certificate

Program/Unit Goal

Increase Certificate Quality (instructors, equipment, course delivery, Industry bridge, jobs)

Goal Cycle

2024 - 2027

What are you doing now in support of this goal?

1. Continue to search for quality electrical instructors. This is difficult as most electricians do not have a 2 year degree and most make much more money than a teaching position. Also, union electricians are not allowed to teach at NON-UNION facilities. This makes it extremely difficult.
2. Equipment. The better the equipment, the more students will enjoy the course and will provide the best advertisement, "word of mouth". Our equipment is something to be proud of. Inventory is constantly taken to insure that our equipment is top notch.
3. Course delivery. The electrical courses teach mostly how to work with your hands. Emphasis is made that all student learn how to use the tools and master them. These include hand tools and test equipment.
4. The main part of the Electrician Certificate is getting a job. The electrical field is a competitive field. Many students find this out too late. Competition is key and you have to be better than everyone else. Creating a bond with local electrical contractors is a must and is hard. Most contractors want Union trained electrician. This is why Norco College's program has to produce the best technicians in the Inland Empire.

What are your plans (3-year) regarding this goal?

1. Instructors. Continue to call electrical wholesale outlets.
2. Equipment. Maintain top quality tools and inventory.
3. Course delivery. Make the course fun and competitive.
4. Finding jobs. Find and maintain relationships with electrical contractors who will help our school.

Please add any relevant documents here.

Mapping

Educational Master Plan (2020-2025): ()

- 2025 Objective 1.3 (Student Services):
- 2025 Objective 2.2 - KPI 5 (Academic Affairs):
- 2025 Objective 5.1- KPI 13 (Student Services):
- 2025 Objective 5.2 - KPI 14 (Academic Affairs):
- 2025 Objective 5.3 - KPI 15 (Student Services):
- 2025 Objective 6.5 (Office of the President):
- 2025 Objective 7.2 (Academic Senate):
- 2025 Objective 7.3 (Academic Senate):
- 2030 Goal 1: Access:
- 2030 Goal 3: Equity:
- 2030 Goal 5: Workforce and Economic Development:
- 2030 Goal 6: (Community Partnerships) :
- 2030 Goal 7: Programs:

Electrician Program Overall View

Program/Unit Goal

Electrician Program

Goal Cycle

2024 - 2027

What are you doing now in support of this goal?

Program/Unit Goals

This review is about the Electrician Program at Norco College. The core of the Electrician Program are the following courses:

ELC 71 Residential Electrical Wiring
ELC 72 Commercial and Industrial Electrical Wiring
ELC 73 Electric Motors and Transformers
ELC 74 Industrial Wiring and Controls
ELC 75 Solid State Devices and Lighting Controls
ELC 76 Low Voltage Wiring and Alternate Energy Generation
ELC 77 Electrical Theory
CON 66

This is a single faculty discipline.

Cross Listing Problem: Most of these courses are cross listed with the electronics program and the manufacturing program. Because of this, many students enroll under the Electronics portion (ELE) and the ELC discipline does not receive credit.

Class enrollment is excellent. We currently offer all these courses both in the Spring and Fall semesters and most classes are full with 30 students.

Space problems. Classroom space is always a problem. The CTE and industrial courses always need a lot of material and a lot of room. We need a warehouse. We could expand the courses if we had more room. The demand is high for Electrical Technicians.

Reaching out to working students. Many students work and can only come to school at nights and on weekends. We are constantly changing the times of the courses to meet this demand. We do this by offering classes at nights and Saturdays. We also offer these courses one day per week. This way if the student can get permission to take off work, then he will only have to take off one day instead of two days. All these changes are working. The Residential, Commercial, the Solid State and Low voltage classes were only offered once a year. Now, as mentioned, all classes are offered both in Spring and Fall.

Summer and Winter semesters. Many students seek to decrease the time for a certificate by searching for Summer and Winter courses. We are currently looking at ways to do this. Many classes are too difficult but not all. ELC 75 and ELC 76 could be offered in the Summer and Winter. CON 66 is already available during these semesters.

Problems: The Electrician Program has a couple of problems: space and instructors. Instructors are hard to find for various reasons. First of all, the electrical union (IBEW) is the major producer of electricians. According to IBISWorld, an industry research firm, there were an estimated 1,108,838 people employed in the electrician industry in the US as of 2023.

The problem is that union electricians are forbidden to teach at NON-UNION locations. Second, the teacher's salary is very low compared with the wages that electricians are used to. Third, most electricians are so busy working that they fail to complete any degree. Electricians usually work 60 hours per week and there is no time for school.

The Space problem. We could double the amount of students in some of our classes by running multiple classes, but that would be to double the material investment and classroom space. Not feasible.

Program/Unit Goals

OVERALL THE ELECTRICAL PROGRAM IS VERY SUCCESSFUL. At this point in time, there is quite a demand for electricians, there are enough students to fill the classes, there is room for expansion, electricians make a wonderful salary, and the economy is booming at this time (2024). According to Burning Glass, there are 366 ads for electrician at any point in time in the Inland Empire, July 2021 through June 2022. See report.

What are your plans (3-year) regarding this goal?

To Make Norco College the best Electrical Program in Southern California.

Please see the appropriate documents and reports in the depository.

Please add any relevant documents here.

1. Which equity-related professional development trainings have members of your area participated in to improve student learning, student support, and/or college support?

None . Most instructors are part time

2. What knowledge or skills/techniques have members in your area implemented from these trainings and what changes have you seen?

None

3. What additional equity-related professional development/trainings do you seek to better support your area?

We need help in this area.

Please add any relevant documents here.

Are all your courses current (within four years)?

No

What percentage of your courses are out of date?

More than 25%

If you have courses that are not current, are they in the curriculum process?

No

For out of date courses that are not already in progress of updating, what is your plan?

Begin to update courses. This is a single instructor discipline.

Do you have proposals in progress for all the DE courses you intend to file?

Yes

Do you require help to get your courses up to date?

Yes

Please add any relevant documents here.

Replace chairs in IT-124

Resource Year

2024 - 2027

What resources do we already have?

Broken chairs

What resources do you need?

New Chairs

\$ Amount Requested

10,000

Resource Type

ITEM: Equipment, Services, Software, Furniture

Please summarize how this request supports one or more EMP Goals, Equity goals, your program plans or goals, and/or is supported by outcomes assessment data.

Most existing chairs' backs are broken. This request supports all goals.

This request for my area is Priority #:

1

Is this request

New

Mapping

Instructional: [Electrician \(ELC\): \(.\)](#)

- Electrician Certificate: .
- Electrician Program Overall View: .

General Replacement of broken and consumable materials

Resource Year

2024 - 2027

What resources do we already have?

In the electrical program, we have a good selection of top notch equipment.

What resources do you need?

The broken and consumable material we need includes boxes, keyless, wire, conduit, meters, outlet testers, etc. The amount requested will be consumed in 3 years

\$ Amount Requested

30,000

Resource Type

ITEM: Instructional Supplies

Please summarize how this request supports one or more EMP Goals, Equity goals, your program plans or goals, and/or is supported by outcomes assessment data.

Goals 3, 5, and 7. These goals comprise of closing the equity gap, providing a program to reduce working poverty, and to continue to make Norco College the best technical school in Southern California

This request for my area is Priority #:

1

Is this request

New

Mapping

Instructional: [Electrician \(ELC\): \(.\)](#)

- Electrician Certificate: .
- Electrician Program Overall View: .

Mechatronics Learning System

Resource Year

2024 - 2027

What resources do we already have?

Our industrial advance equipment is limited.

What resources do you need?

Mechatronics Learning system

\$ Amount Requested

45,000

Resource Type**Please summarize how this request supports one or more EMP Goals, Equity goals, your program plans or goals, and/or is supported by outcomes assessment data.**

Goals 3, 5, and 7. These goals comprise of closing the equity gap, providing a program to reduce working poverty, and to continue to make Norco College the best technical school in Southern California. In order to ensure that students learn all the necessary knowledge that is required as an electrician, we must have the equipment to do so.

This request for my area is Priority #:

2

Is this request

New

Powerflex VFD drives with PLC peripherals

Resource Year

2024 - 2027

What resources do we already have?

We have a limited amount of these modules; 4 for a class of 30.

What resources do you need?

VFD's and PLC modules to service a classroom of 30.

\$ Amount Requested

70,000

Resource Type

ITEM: Instructional Supplies

Please summarize how this request supports one or more EMP Goals, Equity goals, your program plans or goals, and/or is supported by outcomes assessment data.

Goals 3, 5, and 7. These goals comprise of closing the equity gap, providing a program to reduce working poverty, and to continue to make Norco College the best technical school in Southern California. With this equipment, we will be able to ensure that each student has adequate knowledge of the electrical trade to be competitive in the electrical field. This also reflects on Norco College.

This request for my area is Priority #:

1

Is this request

New

Audio/Visual IT-124 and ATEC 119

Resource Year

2024 - 2027

What resources do we already have?

Each class has one screen. Students in the rear cannot see properly

What resources do you need?

Replace both Audio/Visual systems in both classrooms

\$ Amount Requested

70,000

Resource Type

ITEM: Equipment, Services, Software, Furniture

Please summarize how this request supports one or more EMP Goals, Equity goals, your program plans or goals, and/or is supported by outcomes assessment data.

Goals 3, 5, and 7. These goals comprise of closing the equity gap, providing a program to reduce working poverty, and to continue to make Norco College the best technical school in Southern California

This request for my area is Priority #:

2

Is this request

New

Faculty Professional Development Requests

Faculty Hiring Resource Requests

Program Review Reflections

What would make program review meaningful and relevant for your unit?

The Program Review should be a process to showcase our program, monitor its progress, and provide changes for improvement. Once started, I am encouraged and energized to create a meaningful review. It is a chance to look at the big picture while we stand back and admire,, like a painter admiring his painting. Sometimes, we are hesitant to take the time to do this because we are so busy with the day to day activities, and life. Starting is the biggest hurdle.

What questions do we need to ask to understand your program plans, goals, needs?

I believe that the Program Review Committee has done everything to make this task simple. With the videos, the personal encouragement, and the pop-ups within the program review.

What types of data do you need to support your program plans, goals, needs?

In the area of CTE and the electronics or the electrician program, program completions seems to be the most important rule the we use to measure success. Many, many students do not complete these programs because the obtain what they are looking for.....a good paying job. Traking the students and seeing where they are 5 years later may be a better snapshot of their success at Norco College.

If there are any supporting documents you would like to attach, please attach them here.

Submission

All parts of my Program Review have been completed and it is ready for review.

Yes

2021

Sector Analysis Report: High-Quality Jobs in the Inland Empire/Desert Region



Prepared by the Inland Empire/Desert
Region Center of Excellence

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COVID-19 Statement: This report includes employment projection data by Emsi. Emsi’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy will be at approximately full employment or potential output during the projection period. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

If this document is not accessible for any reason or if you have specific needs for readability, don't hesitate to get in touch with us, and we will do our utmost to accommodate you with a modified version. To make a request, contact Michael Goss by email at Michael.Goss@chaffey.edu.

Introduction

The Inland Empire/Desert Region, which encompasses Riverside and San Bernardino counties, is one of California's largest regions by area and population. At 27,408 square miles, the region is slightly smaller in geographic area than the state of Maine. In 2020, the region was home to 4.7 million residents. In terms of population, if the region were a state, it would be the 25th most populous in the nation, ranking between Alabama and Louisiana.¹ By 2025, the region is projected to undergo modest population growth of 5.4%, adding 255,506 residents. Employment in the region is expected to increase by 7.2%, adding 124,323 jobs during the same time period. Population growth in the region (5.4%) is expected to outpace California in population growth (2%) and job growth over the next five years (5.4%).²

The California Community Colleges Chancellor's Office (CCCCO) has identified 10 priority career education (CE) sectors, and one emerging sector in California.³ To assist the 12 community colleges in the region with strategic planning and program development, the Inland Empire/Desert Region Center of Excellence for Labor Market Research (COE) conducted a regional analysis of these 10 sectors and one emerging sector, life sciences/biotech, and presents major findings in this report. Sectors highlighted in green were selected as priority sectors by the Inland Empire/Desert Regional Consortium in 2017 and are represented by a Regional Director of Employer Engagement (RDEE) or a Statewide Director based locally at one of the host community college districts.

- 1. Advanced Manufacturing**
- 2. Advanced Transportation and Logistics**
3. Agriculture, Water, and Environmental Technologies
- 4. Business and Entrepreneurship**
5. Education and Human Development
6. Energy, Construction, and Utilities
- 7. Health**
- 8. Information and Communication Technology (ICT)/Digital Media**
9. Life Sciences/Biotech
10. Public Safety Career Cluster
11. Retail, Hospitality, and Tourism

¹ "Historical Population Change Data," United States Census Bureau, April 26, 2021, retrieved June 28, 2021, <https://www.census.gov/data/tables/time-series/dec/popchange-data-text.html>.

² Emsi 2021.2; QCEW, non-QCEW, self-employed.

³ "Industry Sector Crosswalk: K12 Strong Workforce Program," the California Community Colleges Chancellor's Office, 2021, retrieved June 24, 2021, <https://www.cccco.edu/About-Us/Chancellors-Office/Divisions/Workforce-and-Economic-Development/Strong-Workforce-Program/SWP-Archive/Events/K12-SWP-Industry-Sector-Crosswalk>.

This report focuses on occupations identified through the Standard Occupational Classification (SOC) System that are crosswalked to Taxonomy of Programs (TOP) codes. These occupations are most relevant for students who enroll in community college education and training. The regional analysis by sector allows for a comprehensive evaluation of:

- 1) Where “good” jobs exist, i.e., promising occupations for students, and
- 2) Where colleges can invest in programs to address opportunities in the labor market.

The analysis identified high-quality occupations that show relatively strong workforce demand (100+ regional annual job openings) and offer a median hourly wage that is higher than the region’s self-sustainability wage (\$20.86 per hour). As a result, the occupations highlighted in this report can be used to calibrate training programs to address regional in-demand jobs that pay self-sustaining earnings.

Research Methods

For this study, an occupation is considered in-demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high-wage if their median hourly wage meets or exceeds \$20.86 per hour. If an occupation meets or exceeds the in-demand and the high-wage criteria, then it is considered a high-quality job in this report.

Exhibit 1. In-demand and high-wage criteria for the high-quality job designation

In Demand	High Wage
100+ Annual Job Openings	Median Hourly Rate of \$20.86+

An occupation that met at least one criterion was then analyzed further to determine if this occupation would be obtainable for students willing and able to commute outside the region to secure employment or if a student would need a few years of work experience to obtain self-sustaining earnings.

For occupations that met the high-wage criteria but had a low number of annual openings and therefore did not meet the in-demand criteria, the research team examined the demand for these occupations in four Southern California counties adjacent to Riverside and San Bernardino counties: Imperial, Los Angeles, Orange, and San Diego. The four counties combined contain approximately 5.7 times more annual job openings (about 461,000 annual job openings) compared to the Inland Empire/Desert Region (about 81,000 annual job openings).

Jobs that met the in-demand criterion but not the high-wage criterion were further examined to determine if their earnings met the \$20.86/hour threshold in the experienced earnings category (earnings derived from the 75th percentile). The 75th percentile indicates that only the top 25% of workers in the occupation earn the stated hourly wage or above. Reviewing this category may indicate that employers are generally willing to offer this rate of pay to workers, but only after years of on-the-job work experience.

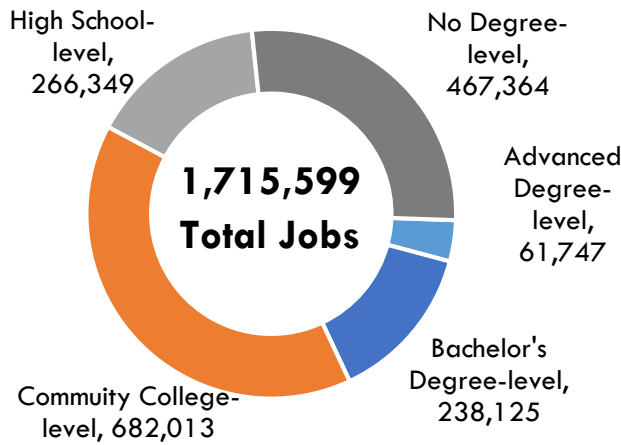
The following sections of this report analyze community-college-level occupations within each of the 10 CCCC-designated sectors and the life sciences/biotech emerging sector. For each sector, a program inventory was conducted examining each college with related programs; the study also identifies promising areas for program development. Current employment (number of jobs in 2020), projected occupational demand (annual job openings which represent the combination of new and replacement jobs), and earnings for each occupation associated with a sector are included in this report. Occupations with available programs offered by community colleges in the region are marked with an asterisk (*).

For each sector, occupations are highlighted that meet the high-quality job designation (in-demand and high-wage). Occupations that are either in-demand or high-wage were further analyzed to determine if they meet additional criteria to be considered good investments. Finally, recommendations are shared for each sector. A final recommendation section is available at the end of this report. Labor market data in this report is sourced from Emsi 2021.2; QCEW, non-QCEW, self-employed. Community college program data was sourced from the Chancellor's Office Curriculum Inventory and community college course catalogs and then validated by the regional community college research teams. Appendix A contains definitions of terms used in this report. Appendix B has a detailed program inventory by sector, noting every community college with a related program in the region.

Occupational Overview

This report specifically focuses on community-college-level occupations related to the 10 CCCC sectors and one emerging sector that aligns with CE training provided in the region. Community-college-level occupations, also known as middle-skill occupations, typically require educational attainment beyond a high school diploma but less than a four-year degree. Most community-college-level jobs offer a higher pay rate, making them an excellent fit for community college students who embark on a CE pathway toward in-demand careers that pay self-sustaining earnings. Exhibit 1 displays the total count of regional jobs by educational attainment in the region. Nearly 40% of jobs in the region, a total of 682,013, typically require a community-college-level education. The second-largest category, no degree, accounts for 467,364 jobs in the region.

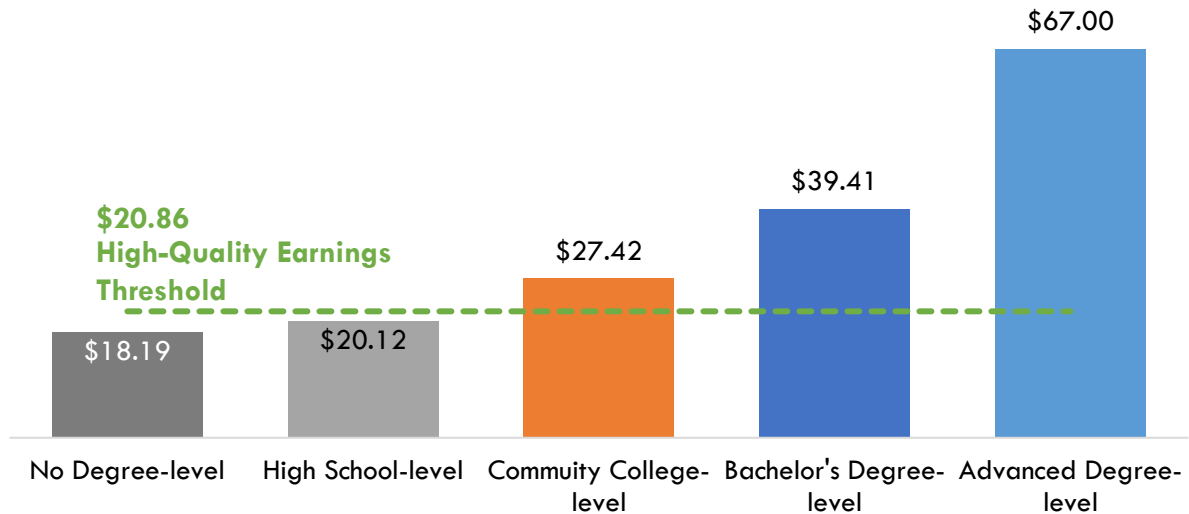
Exhibit 2. Breakdown of jobs requiring an educational attainment of high school, community college, a bachelor’s degree, an advanced degree, or no degree in the region



Source: Emsi 21.2

Exhibit 2 displays average median earnings by educational attainment. Workers with an advanced degree earn on average \$67/hour in the region, more than double what workers with a community college education earn, \$27.42/hour. By comparison, workers with no degree earn much less, an average median wage of \$18.19/hour.

Exhibit 3. Average median hourly earnings by educational attainment

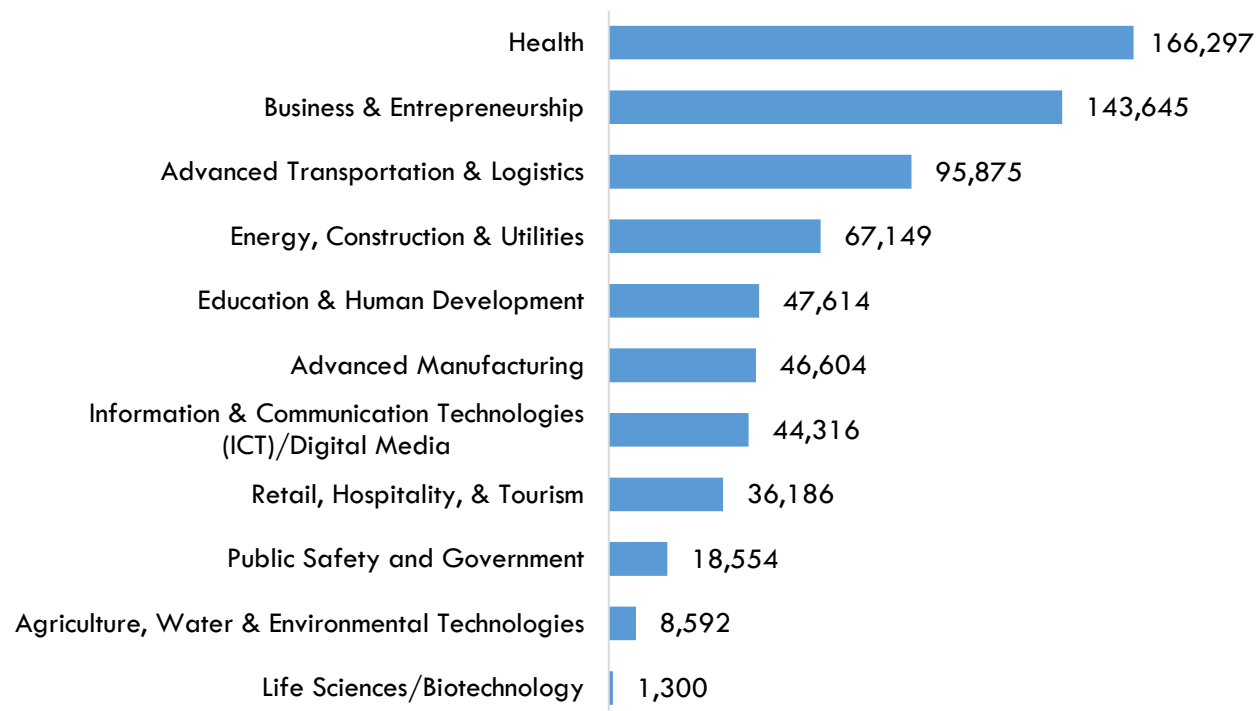


Source: Emsi 21.2

Occupational Overview by CCCCCO Priority & Emerging Sector

Exhibit 4 displays the number of community-college-level jobs by CCCCCO priority and emerging sector in 2020. Of the 676,132 community-college-level jobs assigned to the 11 sectors in 2020, nearly 25% occur in the health sector, while the business and entrepreneurship sector accounts for 21.2% of jobs. The advanced transportation and logistics sector has the third-largest concentration of jobs, 14.2%.

Exhibit 4. Community-college-level jobs by CCCCCO priority and emerging sector



Source: Emsi 21.2

Advanced Manufacturing

The manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. This sector includes traditional manufacturing work in addition to jobs and careers dedicated to customization, scalability, and technologies that improve the entire manufacturing process.⁴ Advanced manufacturing employers reported 113,192 total jobs in 2020 (includes all jobs and education levels), accounting for 6.6% of the total jobs in the region.

⁴ "North American Industry Classification System (NAICS)," U.S. Census Bureau, 2017, retrieved June 29, 2021, <https://www.census.gov/naics/?input=31&year=2017&details=31>.

Community College Programs

The community colleges in the region offer 13 advanced manufacturing programs, with the opportunity to offer 14 additional programs that are not currently in existence in this sector. Seven colleges offer programs related to this sector: Barstow, Chaffey, Norco, Palo Verde, Riverside City, San Bernardino Valley, and Victor Valley.

Exhibit 5. Advanced manufacturing program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
0924.00 - Engineering Technology, General	0934.20 - Industrial Electronics
0934.00 - Electronics and Electric Technology	0934.80 - Laser and Optical Technology
0934.10 - Computer Electronics	0935.10 - Appliance Repair
0936.00 - Printing and Lithography	0943.00 - Instrumentation Technology
0945.00 - Industrial Systems Technology and Maintenance	0943.30 - Vacuum Technology
0950.00 - Aeronautical and Aviation Technology	0953.30 - Electrical, Electronic, and Electro-Mechanical Drafting
0950.40 - Aircraft Electronics (Avionics)	0953.60 - Technical Illustration
0950.50 - Aircraft Fabrication	0954.20 - Plastics and Composites
0953.40 - Mechanical Drafting	0954.30 - Petroleum Technology
0956.00 - Manufacturing and Industrial Technology	0956.70 - Industrial and Occupational Safety and Health
0956.30 - Machining and Machine Tools	0956.80 - Industrial Quality Control
0956.50 - Welding Technology	0957.30 - Surveying
1303.30 - Fashion Production	0961.00 - Optics
	1920.00 - Ocean Technology

Source: Launchboard, COCI, College Catalogs, COE

Community-College-Level Occupations

There are 33 community-college-level occupations that fall within the advanced manufacturing sector. In 2020, these occupations had an estimated 46,604 jobs. These jobs are projected to have 4,649 annual job openings through 2025. The median hourly earnings for these occupations range from \$15.36/hour to \$38.96/hour.

Exhibit 6. Advanced manufacturing community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Maintenance and Repair Workers, General*	14,096	1,475	\$21.57
Inspectors, Testers, Sorters, Samplers, and Weighers*	5,069	537	\$18.17
First-Line Supervisors of Production and Operating Workers*	4,889	450	\$30.06
Welders, Cutters, Solderers, and Brazers*	4,301	427	\$19.51
Machinists*	3,239	335	\$20.06

Inland Empire/Desert Region Sector Analysis Report

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Industrial Machinery Mechanics*	2,836	291	\$30.64
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers*	2,068	198	\$15.36
Printing Press Operators*	1,158	110	\$15.98
Computer Numerically Controlled Tool Operators*	946	85	\$17.97
Electrical and Electronic Engineering Technologists and Technicians*	884	79	\$34.93
Maintenance Workers, Machinery	806	72	\$25.83
Molders, Shapers, and Casters, Except Metal and Plastic	739	72	\$19.02
Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other*	717	63	\$37.96
Electrical and Electronics Repairers, Commercial and Industrial Equipment*	586	45	\$34.40
Mechanical Drafters*	520	45	\$28.76
Home Appliance Repairers	447	40	\$20.56
Tool and Die Makers*	398	37	\$26.74
Avionics Technicians*	338	26	\$38.96
Aerospace Engineering and Operations Technologists and Technicians*	304	28	\$34.83
Electrical and Electronics Drafters*	304	29	\$28.94
Computer Numerically Controlled Tool Programmers*	238	29	\$34.30
Industrial Engineering Technologists and Technicians*	226	22	\$35.25
Commercial and Industrial Designers	197	18	\$31.01
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders*	191	18	\$17.36
Mechanical Engineering Technologists and Technicians*	175	16	\$25.08
Photographic Process Workers and Processing Machine Operators	169	23	\$18.60
Precision Instrument and Equipment Repairers, All Other	169	16	\$33.83
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers*	148	12	\$18.67
Prepress Technicians and Workers*	140	15	\$18.81
Electric Motor, Power Tool, and Related Repairers*	115	14	\$22.78
Petroleum Pump System Operators, Refinery Operators, and Gaugers	91	11	\$30.76

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Electro-Mechanical and Mechatronics Technologists and Technicians*	50	5	\$29.07
Semiconductor Processing Technicians	50	6	\$27.53
TOTAL	46,604	4,649	\$15.36 to \$38.96

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

Community colleges devote attention toward ensuring that their training programs lead to occupations with adequate annual job openings and self-sustaining earnings. For this study, an occupation is considered in demand if it has 100 or more annual job openings over the next five years in the region. Occupations are considered high wage if the median hourly wage meets or exceeds \$20.86 per hour. The three occupations below are considered high-quality because they meet both criteria.

Exhibit 7. Advanced manufacturing high-quality community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Maintenance and Repair Workers, General*	14,096	1,475	\$21.57
First-Line Supervisors of Production and Operating Workers*	4,889	450	\$30.06
Industrial Machinery Mechanics*	2,836	291	\$30.64

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Advanced manufacturing employment opportunities that met either the in-demand or high-wage criteria, but not both, were further examined for this study. Occupations were analyzed that have fewer than 100 annual job openings in the Inland Empire/Desert Region but at least 500 combined annual job openings in neighboring counties (Los Angeles, San Diego, Orange, and Imperial). Occupations were included that fell short of the high-wage standard (\$20.86 per hour) at the median level, but that exceed this criterion at the experienced level, 75th percentile.

Exhibit 8. Advanced manufacturing community-college-level occupations that are either high wage or in demand, but not both

Occupations	Annual Job Openings In Region	Annual Job Openings In 4 Counties	Median Hourly Earnings	Experienced Hourly Earnings
Inspectors, Testers, Sorters, Samplers, and Weighers*	537	3,552	\$18.17	\$23.58
Welders, Cutters, Solderers, and Brazers*	427	1,889	\$19.51	\$24.38
Machinists*	335	2,179	\$20.06	\$27.97
Computer Numerically Controlled Tool Operators*	85	810	\$17.97	\$22.69
Electrical and Electronic Engineering Technologists and Technicians*	79	799	\$34.93	\$41.99
Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other*	63	548	\$37.96	\$46.21

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

Of the 33 occupations within the advanced manufacturing sector, three occupations are considered high-quality jobs. Each of these occupations are trained by existing programs in the region.

Six additional advanced manufacturing occupations had either at least 500 jobs available in the neighboring four counties or an experienced hourly wage (75th percentile) that meets or exceeds \$20.86 per hour. Each of these occupations also has regional training programs.

Advanced Transportation and Logistics

The advanced transportation and logistics sector includes industries providing transportation of passengers and cargo, warehousing and storage for goods, and support activities related to modes of transportation. The modes of transportation are air, rail, water, road, and pipeline. Support activities include the routine repair and maintenance of transportation equipment, such as aircraft, railroad rolling stock, cars, trucks, and ships. Many establishments in this sector often operate on networks with physical facilities, labor forces, and equipment spread over an extensive geographic area.⁵ Advanced transportation and logistics employers reported 220,967 industry sector jobs in 2020, accounting for 12.8% of the total jobs in the region.

Community College Programs

The community colleges in the region offer nine advanced transportation and logistics programs, with the opportunity to offer 10 additional programs in this sector that are not currently in existence. Ten colleges offer programs related to this sector. The two colleges without programs are Crafton Hills College and Moreno Valley College.

Exhibit 9. Advanced transportation and logistics program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
0510.00 - Logistics and Materials Transportation	0947.20 - Heavy Equipment Maintenance
0947.00 - Diesel Technology	0947.30 - Heavy Equipment Operation
0948.00 - Automotive Technology	0947.40 - Railroad and Light Rail Operations
0948.40 - Alternative Fuels and Advanced Transportation Technology	0947.50 - Truck and Bus Driving
0949.00 - Automotive Collision Repair	0948.30 - Motorcycle, Outboard and Small Engine Repair
0949.10 - Upholstery Repair - Automotive	0948.50 - Recreational Vehicle Service
0950.10 - Aviation Airframe Mechanics	0959.00 - Marine Technology
0950.20 - Aviation Powerplant Mechanics	3020.10 - Aviation and Airport Management
3020.00 - Aviation and Airport Management and Services	3020.20 - Piloting
	3020.30 - Air Traffic Control

Source: Launchboard, COCI, College Catalogs, COE

Community-College-Level Occupations

There are 34 community-college-level occupations that fall within the advanced transportation and logistics sector. In 2020, these occupations had an estimated 95,875 jobs and are projected to have 11,115

⁵ "READY Career Education Poster," Inland Empire/Desert Regional Consortium, 2018, retrieved June 29, 2021, <https://desertcolleges.org/posters.php>.

annual job openings through 2025. The median hourly earnings for these occupations range from \$16.82/hour to \$52.58/hour.

Exhibit 10. Advanced transportation and logistics community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Heavy and Tractor-Trailer Truck Drivers	32,171	4,120	\$23.81
Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	8,419	1,186	\$16.82
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors*	9,082	1,145	\$28.42
Automotive Service Technicians and Mechanics*	11,604	1,051	\$20.58
Production, Planning, and Expediting Clerks*	4,852	552	\$23.00
First-Line Supervisors of Mechanics, Installers, and Repairers*	4,766	450	\$38.43
Parts Salespersons	3,711	433	\$17.22
Bus and Truck Mechanics and Diesel Engine Specialists*	4,171	409	\$23.95
Transportation, Storage, and Distribution Managers*	2,495	251	\$44.41
Mobile Heavy Equipment Mechanics, Except Engines	2,139	213	\$30.32
Logisticians*	1,967	212	\$38.79
Automotive Body and Related Repairers*	1,993	185	\$18.95
Cargo and Freight Agents*	1,081	167	\$17.41
Aircraft Mechanics and Service Technicians*	1,683	149	\$35.48
Bus Drivers, Transit and Intercity	1,170	143	\$21.78
Locomotive Engineers	694	56	\$46.19
Commercial Pilots	407	49	\$41.89
Outdoor Power Equipment and Other Small Engine Mechanics	415	42	\$19.84
Recreational Vehicle Service Technicians	394	41	\$17.57
Motorboat Mechanics and Service Technicians	392	36	\$20.02
Rail Car Repairers	306	32	\$31.98
Farm Equipment Mechanics and Service Technicians*	324	30	\$23.28
Rail-Track Laying and Maintenance Equipment Operators	282	29	\$28.26

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Transportation Inspectors*	220	24	\$29.00
Motorcycle Mechanics	246	23	\$22.74
Captains, Mates, and Pilots of Water Vessels	221	21	\$35.59
Airfield Operations Specialists	182	17	\$28.90
Air Traffic Controllers	136	13	\$52.58
Electrical and Electronics Installers and Repairers, Transportation Equipment*	160	12	\$29.61
Ship Engineers	70	8	\$41.53
Commercial Divers	41	5	\$24.20
Electronic Equipment Installers and Repairers, Motor Vehicles*	45	5	\$18.75
Aircraft Cargo Handling Supervisors	15	4	\$20.31
Motorboat Operators	21	2	\$22.97
TOTAL	95,875	11,115	\$16.82 to \$52.58

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

For this study, an occupation is considered in-demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high-wage if the median hourly wage meets or exceeds \$20.86 per hour. The occupations below are considered high quality because they meet both criteria.

Exhibit 11. Advanced transportation and logistics high-quality community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Heavy and Tractor-Trailer Truck Drivers	32,171	4,120	\$23.81
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors*	9,082	1,145	\$28.42
Production, Planning, and Expediting Clerks*	4,852	552	\$23.00
First-Line Supervisors of Mechanics, Installers, and Repairers*	4,766	450	\$38.43
Bus and Truck Mechanics and Diesel Engine Specialists*	4,171	409	\$23.95

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Transportation, Storage, and Distribution Managers*	2,495	251	\$44.41
Mobile Heavy Equipment Mechanics, Except Engines	2,139	213	\$30.32
Logisticians*	1,967	212	\$38.79
Aircraft Mechanics and Service Technicians*	1,683	149	\$35.48
Bus Drivers, Transit and Intercity	1,170	143	\$21.78

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Advanced transportation and logistics employment opportunities that met either the in-demand or high-wage criteria, but not both, were further examined for this study. Occupations were analyzed that have fewer than 100 annual job openings but at least 500 combined annual job openings in neighboring counties (Los Angeles, San Diego, Orange, and Imperial). Occupations were included that fell short of the high-wage (\$20.86 per hour) at the median level but that exceed this criterion at the experienced level, 75th percentile.

Exhibit 12. Advanced transportation and logistics community-college-level occupations that are either high wage or in demand, but not both

Occupations	Annual Job Openings In Region	Annual Job Openings In 4 Counties	Median Hourly Earnings	Experienced Hourly Earnings
Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	1,186	7,528	\$16.82	\$22.67
Automotive Service Technicians and Mechanics*	1,051	3,626	\$20.58	\$27.98
Parts Salespersons*	433	1,528	\$17.22	\$22.48
Automotive Body and Related Repairers*	185	710	\$18.95	\$27.44

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

Of the 34 occupations that occur within the advanced transportation and logistics sector, 10 occupations are considered high-quality jobs.

Three of the high-quality jobs are not currently trained by existing programs:

1. Heavy and tractor-trailer truck drivers: 4,120 annual job openings, \$23.81 median hourly

2. Mobile heavy equipment mechanics, except engines: 213 annual job openings, \$30.32 median hourly
3. Bus drivers, transit and intercity: 143 annual job openings, \$21.78 median hourly

Four additional advanced transportation and logistics occupations provided an experienced hourly wage (75th percentile) that met or exceeded \$20.86 per hour. One occupation did not have a regional training program: Passenger vehicle drivers, except bus drivers, transit and intercity, which has 7,528 annual job openings and a \$22.67/hour experienced wage (75th percentile).

Of the four occupations without training programs, three were occupations related to driving vehicles and one was associated with repairing equipment. If the colleges are not interested in developing driving programs, the occupation focused on repair—mobile heavy equipment mechanics, except engines—appears to be a great investment for the region. This high-quality job is trained by the TOP code 0947.20 - Heavy Equipment Maintenance.

Agriculture, Water, and Environmental Technologies

The agriculture, water, and environmental technologies sector is more than just agricultural production.

Programs in this sector are varied from animal science to agricultural wholesale trade, environmental services, and veterinary services⁶. In 2020, this sector had 47,852 total jobs in the region, accounting for 2.8% of all jobs.

Community College Programs

The community colleges in the region offer two agriculture, water, and environmental technology programs, with the opportunity to offer 14 additional programs that are not currently in existence. Three colleges currently offer programs: College of the Desert, Mt. San Jacinto, Palo Verde, and Victor Valley.

Exhibit 13. Agriculture, water, and environmental technologies program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
0115.00 - Natural Resources	0101.00 - Agriculture Technology and Sciences, General
0303.00 - Environmental Technology	0102.10 - Veterinary Technician (Licensed)
	0102.20 - Artificial Inseminator
	0102.30 - Dairy Science
	0103.10 - Agricultural Pest Control Advisor and Operator
	0104.00 - Viticulture, Enology, and Wine Business
	0109.10 - Landscape Design and Maintenance
	0109.20 - Floriculture -Floristry
	0113.00 - Food Processing and Related Technologies
	0114.00 - Forestry
	0115.10 - Parks and Outdoor Recreation
	0115.20 - Wildlife and Fisheries
	0116.00 - Agricultural Power Equipment Technology
	0199.00 - Other Agriculture and Natural Resources

Source: Launchboard, COCI, College Catalogs, COE

⁶ "READY Career Education Viewbook," Inland Empire/Desert Regional Consortium, 2018, retrieved June 29, 2021, <https://desertcolleges.org/posters.php>.

Community-College-Level Occupations

There are 11 community-college-level occupations that fall within the agriculture, water, and environmental technologies sector. In 2020, these occupations had an estimated 8,562 jobs and are projected to have 926 annual job openings through 2025. The median hourly earnings for these occupations range from \$14.91/hour to \$55.47/hour.

Exhibit 14. Agriculture, water, and environmental technologies community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Farmers, Ranchers, and Other Agricultural Managers*	2,855	268	\$55.47
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers*	2,228	248	\$23.55
Forest and Conservation Technicians*	591	71	\$21.11
Veterinary Technologists and Technicians	656	70	\$16.25
First-Line Supervisors of Farming, Fishing, and Forestry Workers*	455	64	\$26.55
Animal Trainers*	394	57	\$14.91
Environmental Science and Protection Technicians, Including Health	397	47	\$22.81
Environmental Engineering Technologists and Technicians*	344	31	\$32.79
Floral Designers	325	28	\$16.26
Agricultural and Food Science Technicians	189	23	\$21.84
Pesticide Handlers, Sprayers, and Applicators, Vegetation*	128	19	\$15.00
TOTAL	8,562	926	\$14.91 to \$55.47

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

For this study, an occupation is considered in-demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high wage if the median hourly wage meets or exceeds \$20.86 per hour. The occupations below are considered high quality because they meet both criteria.

Exhibit 15. Agriculture, water, and environmental technologies high-quality community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings in Region	Median Hourly Earnings
Farmers, Ranchers, and Other Agricultural Managers*	2,855	268	\$55.47
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers*	2,228	248	\$23.55

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

There are 11 community-college-level occupations within the agriculture, water, and environmental technologies sector. This sector is not represented by a Regional Director of Employer Engagement. Of the 11 occupations identified for this study, two are considered high-quality jobs with a total of 516 annual job openings. Community colleges in the region currently offer programs that address these two occupations.

Business and Entrepreneurship

Community college business and entrepreneurship programs provide skills that span industries engaged in commerce and the public sector. This sector may be considered a catch-all for a variety of activities that span multiple industries. For example, accountants and management skills are necessary for nearly every business, public and private. Training is also available in marketing, office support, real estate, sales, cosmetology, and more.⁷ The skills taught in these programs may be transferred to a four-year university or used for professional development. The business and entrepreneurship sector accounted for 260,639 jobs in 2020, about 15% of the total jobs in the region.

Community College Programs

The community colleges in the region offer 12 business and entrepreneurship programs, with the opportunity to offer 11 additional programs that are not currently in existence. All 12 community colleges in the region offer programs related to this sector.

Exhibit 16. Business and entrepreneurship program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
0501.00 - Business and Commerce, General	0502.10 - Tax Studies
0502.00 - Accounting	0509.10 - Advertising
0504.00 - Banking and Finance	0509.20 - Purchasing
0505.00 - Business Administration	0509.40 - Sales and Salesmanship
0506.00 - Business Management	0509.70 - e-commerce (business emphasis)
0506.30 - Management Development and Supervision	0512.00 - Insurance
0506.40 - Small Business and Entrepreneurship	0514.10 - Legal Office Technology
0509.00 - Marketing and Distribution	0518.00 - Customer Service
0511.00 - Real Estate	1255.00 - Mortuary Science
0511.10 - Escrow	1262.00 - Massage Therapy
0599.00 - Other Business and Management	3005.00 - Custodial Services
3007.00 - Cosmetology and Barbering	

Source: Launchboard, COCI, College Catalogs, COE

Community-College-Level Occupations

There are 39 community-college-level occupations that fall within the business and entrepreneurship sector. In 2020, these occupations had an estimated 143,645 jobs and are projected to have 15,784 annual job openings through 2025. The median hourly earnings for these occupations range from \$11.63/hour to \$47.01/hour.

⁷ "READY Career Education Poster," Inland Empire/Desert Regional Consortium, 2018, retrieved June 29, 2021, <https://desertcolleges.org/posters.php>.

Exhibit 17. Business and entrepreneurship community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Customer Service Representatives	18,653	2,435	\$18.14
Bookkeeping, Accounting, and Auditing Clerks*	15,012	1,659	\$21.26
First-Line Supervisors of Office and Administrative Support Workers*	15,273	1,580	\$28.34
Project Management Specialists and Business Operations Specialists, All Other*	15,071	1,537	\$32.89
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products*	12,476	1,277	\$28.62
Hairdressers, Hairstylists, and Cosmetologists*	9,487	1,105	\$14.58
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	7,925	990	\$23.29
Insurance Sales Agents	4,814	528	\$22.22
Real Estate Sales Agents*	4,856	437	\$27.91
Manicurists and Pedicurists*	3,198	410	\$13.44
Tellers*	3,461	389	\$17.38
Sales and Related Workers, All Other	2,833	337	\$16.49
First-Line Supervisors of Non-Retail Sales Workers	3,413	301	\$25.84
Property, Real Estate, and Community Association Managers*	3,548	282	\$32.43
First-Line Supervisors of Personal Service and Entertainment and Recreation Workers, Except Gambling Services*	2,605	277	\$19.58
Massage Therapists	2,098	268	\$20.34
Administrative Services and Facilities Managers*	2,876	264	\$47.01
Crematory Operators and Personal Care and Service Workers, All Other	1,135	204	\$15.29
Bill and Account Collectors*	1,743	187	\$19.17
Payroll and Timekeeping Clerks*	1,734	177	\$23.72
Real Estate Brokers*	1,628	148	\$34.99
Human Resources Assistants, Except Payroll and Timekeeping	1,200	129	\$22.06
Tax Preparers*	1,174	126	\$14.60
Barbers*	1,004	123	\$11.63
Skincare Specialists*	931	120	\$16.25
Claims Adjusters, Examiners, and Investigators	1,551	112	\$39.07

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Loan Interviewers and Clerks*	909	79	\$21.39
Advertising Sales Agents	653	77	\$32.34
Procurement Clerks*	605	57	\$23.07
Property Appraisers and Assessors*	598	47	\$30.92
New Accounts Clerks*	242	26	\$21.79
Funeral Home Managers	291	23	\$38.89
Brokerage Clerks*	153	17	\$27.03
Statistical Assistants*	104	14	\$19.32
Morticians, Undertakers, and Funeral Arrangers	95	13	\$24.61
Credit Authorizers, Checkers, and Clerks*	112	11	\$22.07
Embalmers	51	8	\$22.65
Insurance Appraisers, Auto Damage*	118	8	\$26.28
Makeup Artists, Theatrical and Performance*	15	2	\$41.90
TOTAL	143,645	15,784	\$11.63 to \$47.01

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

For this study, an occupation is considered in demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high wage if the median hourly wage meets or exceeds \$20.86 per hour. The 14 occupations below have a combined total of 9,421 annual job openings and are considered high quality because they meet both criteria.

Exhibit 18. Business and entrepreneurship high-quality community-college-level occupations

Occupations	2020 Jobs	Average Annual Job Openings	Median Hourly Earnings
Bookkeeping, Accounting, and Auditing Clerks*	15,012	1,659	\$21.26
First-Line Supervisors of Office and Administrative Support Workers*	15,273	1,580	\$28.34
Project Management Specialists and Business Operations Specialists, All Other*	15,071	1,537	\$32.89
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products*	12,476	1,277	\$28.62
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	7,925	990	\$23.29
Insurance Sales Agents	4,814	528	\$22.22
Real Estate Sales Agents*	4,856	437	\$27.91
First-Line Supervisors of Non-Retail Sales Workers	3,413	301	\$25.84
Property, Real Estate, and Community Association Managers*	3,548	282	\$32.43
Administrative Services and Facilities Managers*	2,876	264	\$47.01
Payroll and Timekeeping Clerks*	1,734	177	\$23.72
Real Estate Brokers*	1,628	148	\$34.99
Human Resources Assistants, Except Payroll and Timekeeping	1,200	129	\$22.06
Claims Adjusters, Examiners, and Investigators	1,551	112	\$39.07

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Business and entrepreneurship employment opportunities that met either the in-demand or high-wage criteria, but not both, were further examined for this study. Occupations were analyzed that have fewer than 100 annual job openings but at least 500 combined annual job openings in neighboring counties (Los Angeles, San Diego, Orange, and Imperial). Occupations were included that fell short of the high-wage threshold (\$20.86 per hour) at the median level, but that exceed this criterion at the experienced level, 75th percentile.

Exhibit 19. Business and entrepreneurship community-college-level occupations that are either high wage or in demand, but not both

Occupations	Annual Job Openings In Region	Annual Job Openings In 4 Counties	Median Hourly Earnings	Experienced Hourly Earnings
Customer Service Representatives	2,435	14,049	\$18.14	\$23.41
Hairdressers, Hairstylists, and Cosmetologists*	1,105	5,580	\$14.58	\$22.29
Sales and Related Workers, All Other	337	2,167	\$16.49	\$24.21
First-Line Supervisors of Personal Service and Entertainment and Recreation Workers, Except Gambling Services*	277	1,406	\$19.58	\$26.56
Massage Therapists	268	2,092	\$20.34	\$29.24
Bill and Account Collectors*	187	1,193	\$19.17	\$24.17
Tax Preparers*	126	722	\$14.60	\$30.26
Loan Interviewers and Clerks*	79	1,022	\$21.39	\$26.27
Advertising Sales Agents	77	741	\$32.34	\$43.94

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

Of the 39 community-college-occupations in this sector, there are 14 that are considered high-quality jobs. Four high-quality occupations have more than 1,000 annual openings in the region. Although there currently are programs training for these occupations, the colleges may want to evaluate whether a sufficient number of students are being prepared to enter these occupations and whether programs need to be expanded to meet workforce demand.

Five high-quality jobs currently do not have training programs associated with them:

- Sales representatives of services, except advertising, insurance, financial services, and travel
- Insurance sales agents
- First-line supervisors of non-retail sales workers
- Human resources assistants, except payroll and timekeeping
- Claims adjusters, examiners, and investigators

Community colleges in the region may want to consider developing programs to prepare students for these promising occupations.

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In the area of sales and marketing, the colleges may want to consider offering training for three occupations that meet the high-wage criteria at the experienced-wage level and that have a substantial number of annual openings:

- Customer service representatives
- Sales and related workers, all other
- Advertising sales agents

Education and Human Development

Education and human development programs make a positive difference in the lives of young children. Professionals who follow this path tend to be good communicators with the ability to empathize with people from diverse backgrounds.⁸ Education and human development employers reported 20,023 jobs in 2020, accounting for 1.2% of the total jobs in the region.

Community College Programs

The community colleges in the region offer 12 education and human development programs, with the opportunity to offer five additional programs that are not currently in existence. All 12 community colleges in the region offer programs related to this sector.

Exhibit 20. Education and human development program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
0802.00 - Educational Aide (Teacher Assistant)	0809.00 - Special Education
0802.10 - Educational Aide (Teacher Assistant), Bilingual	0860.00 - Educational Technology
0835.60 - Coaching	0899.00 - Other Education
0836.10 - Recreation Assistant	1305.70 - Foster and Kinship Care
0850.10 - Sign Language Interpreting	1308.00 - Family Studies
1305.00 - Child Development-Early Care and Education	
1305.20 - Children with Special Needs	
1305.40 - Preschool Age Child	
1305.50 - The School Age Child	
1305.60 - Parenting and Family Education	
1305.80 - Child Development Administration and Management	
1305.90 - Infants and Toddlers	

Source: Launchboard, COCI, College Catalogs, COE

Community-College-Level Occupations

There are eight community-college-level occupations that fall within the education and human development sector. In 2020, these occupations had an estimated 47,614 jobs and are projected to have 5,889 annual job openings through 2025. The median hourly earnings for these occupations range from \$14.11/hour to \$35.12/hour.

⁸ READY Career Education Poster," Inland Empire/Desert Regional Consortium, 2018, retrieved June 29, 2021, <https://desertcolleges.org/posters.php>.

Exhibit 21. Education and human development community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Teaching Assistants, Except Postsecondary*	18,295	1,889	\$17.31
Childcare Workers*	13,774	1,855	\$14.29
Recreation Workers*	4,511	779	\$14.11
Social and Human Service Assistants*	4,778	706	\$18.56
Preschool Teachers, Except Special Education*	4,047	384	\$15.31
Library Technicians*	1,003	147	\$22.27
Interpreters and Translators*	955	107	\$35.12
Special Education Teachers, Preschool*	251	22	\$22.95
TOTAL	47,614	5,889	\$14.11 to \$35.12

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

For this study, an occupation is considered in demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high wage if the median hourly wage meets or exceeds \$20.86 per hour. The occupations below are considered high quality because they meet both criteria.

Exhibit 22. Education and development high-quality community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Library Technicians*	1,003	147	\$22.27
Interpreters and Translators*	955	107	\$35.12

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Education and human development employment opportunities that met either the in-demand or high-wage criteria, but not both, were further examined for this study. Occupations were analyzed that have fewer than 100 annual job openings but at least 500 combined annual job openings in neighboring counties (Los Angeles, San Diego, Orange, and Imperial). Occupations were included that fell short of the high-wage threshold (\$20.86 per hour) at the median level, but that exceed this criterion at the experienced level, 75th percentile.

Exhibit 23. Advanced manufacturing community-college-level occupations that are either high wage or in demand, but not both

Occupations	Annual Job Openings In Region	Annual Job Openings In 4 Counties	Median Hourly Earnings	Experienced Hourly Earnings
Teaching Assistants, Except Postsecondary*	1,889	8,508	\$17.31	\$21.30
Social and Human Service Assistants*	706	4,277	\$18.56	\$24.59

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

The education and human development sector is fairly small in terms of the number of community-college-level occupations. This sector has eight community-college-level occupations and two occupations that are considered high-quality jobs. Community colleges in the region offer programs related to all eight occupations.

Energy, Construction, and Utilities

The energy, construction, and utilities sector comprises establishments primarily engaged in the construction, alteration, maintenance, and repair of distribution lines and related buildings and structures for utilities (i.e., water, sewer, petroleum, gas, power, and communication). This sector employs specialty trade contractors, whose primary activity is the utilization of occupation-specific skills that contribute to the completion of projects.⁹ Energy, construction, and utilities employers reported 152,140 jobs in 2020, accounting for 8.8% of the total jobs in the region.

Community College Programs

The community colleges in the region offer 14 energy, construction, and utilities programs, with the opportunity to offer 10 additional programs that are not currently in existence. Nine community colleges offer programs related to this sector in the region. Community colleges without programs are Barstow College, Crafton Hills College, and Moreno Valley College.

Exhibit 24. Energy, construction, and utilities program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
0201.00 – Architecture and Architectural Technology	0952.10 – Carpentry
0934.40 – Electrical Systems and Power Transmission	0952.30 – Plumbing, Pipefitting and Steamfitting
0935.00 – Electro-Mechanical Technology	0952.40 – Glazing
0946.00 – Environmental Control Technology	0952.50 – Mill and Cabinet Work
0946.10 – Energy Systems Technology	0952.60 – Masonry, Tile, Cement, Lath and Plaster
0952.00 – Construction Crafts Technology	0952.70 – Painting, Decorating, and Flooring
0952.20 – Electrical	0952.80 – Drywall and Insulation
0953.00 – Drafting Technology	0952.90 – Roofing
0953.10 – Architectural Drafting	0953.20 – Civil Drafting
0957.00 – Civil and Construction Management Technology	0956.40 – Sheet Metal and Structural Metal
0957.20 – Construction Inspection	
0958.00 – Water and Wastewater Technology	
2102.10 – Public Works	
0299.00 – Other Architecture and Environmental Design	

Source: Launchboard, COCI, College Catalogs, COE

⁹ READY Career Education Poster, "Inland Empire/Desert Regional Consortium, 2018, retrieved June 29, 2021, <https://desertcolleges.org/posters.php>.

Community-College-Level Occupations

There are 39 community-college-level occupations that fall within the energy, construction, and utilities sector. In 2020, these occupations had an estimated 67,149 jobs and are projected to have 7,227 annual job openings through 2025. The median hourly earnings for these occupations range from \$14.69/hour to \$50.07/hour.

Exhibit 25. Energy, construction, and utilities community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Carpenters	20,594	1,956	\$23.58
Electricians*	8,206	1,129	\$24.02
First-Line Supervisors of Construction Trades and Extraction Workers*	8,250	852	\$30.74
Plumbers, Pipefitters, and Steamfitters	5,888	691	\$26.33
Operating Engineers and Other Construction Equipment Operators	4,524	502	\$36.63
Heating, Air Conditioning, and Refrigeration Mechanics and Installers*	4,252	464	\$22.89
Structural Iron and Steel Workers	1,706	192	\$33.43
Construction and Building Inspectors*	1,457	182	\$39.65
Sheet Metal Workers*	1,554	167	\$27.09
Water and Wastewater Treatment Plant and System Operators*	1,479	120	\$34.30
Architectural and Civil Drafters*	1,102	112	\$25.21
Glaziers	808	93	\$24.59
Electrical Power-Line Installers and Repairers*	1,141	91	\$41.04
Solar Photovoltaic Installers*	453	79	\$19.91
Civil Engineering Technologists and Technicians*	676	69	\$29.78
Brickmasons and Blockmasons	807	69	\$25.41
Woodworkers, All Other	504	53	\$14.69
Paving, Surfacing, and Tamping Equipment Operators	452	53	\$23.44
Reinforcing Iron and Rebar Workers	361	53	\$18.02
Millwrights	364	38	\$35.27
Stationary Engineers and Boiler Operators	309	34	\$35.68
Elevator and Escalator Installers and Repairers	250	33	\$15.77

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Power Plant Operators	355	28	\$49.40
Wind Turbine Service Technicians	159	25	\$30.45
Insulation Workers, Mechanical	186	24	\$24.11
Stonemasons	185	17	\$23.82
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay*	239	16	\$49.18
Gas Plant Operators	172	15	\$46.65
Plant and System Operators, All Other	156	15	\$32.71
Pile Driver Operators	113	13	\$38.45
Power Distributors and Dispatchers*	127	10	\$48.24
Boilermakers	103	10	\$33.45
Drafters, All Other*	79	8	\$32.87
Terrazzo Workers and Finishers	67	6	\$27.49
Geological and Hydrologic Technicians	38	4	\$23.95
Nuclear Power Reactor Operators	12	1	\$45.12
Model Makers, Wood	<10	1	\$27.55
Nuclear Technicians	<10	1	\$50.07
Patternmakers, Wood	<10	1	\$24.54
TOTAL	67,149	7,227	\$14.69 to \$50.07

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

For this study, an occupation is considered in demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high wage if the median hourly wage meets or exceeds \$20.86 per hour. Eleven occupations below are projected to have 6,367 annual job openings and are considered high quality because they meet both criteria.

Exhibit 26. Energy, construction, and utilities high-quality community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Carpenters	20,594	1,956	\$23.58
Electricians*	8,206	1,129	\$24.02
First-Line Supervisors of Construction Trades and Extraction Workers*	8,250	852	\$30.74
Plumbers, Pipefitters, and Steamfitters	5,888	691	\$26.33
Operating Engineers and Other Construction Equipment Operators	4,524	502	\$36.63
Heating, Air Conditioning, and Refrigeration Mechanics and Installers*	4,252	464	\$22.89
Structural Iron and Steel Workers	1,706	192	\$33.43
Construction and Building Inspectors*	1,457	182	\$39.65
Sheet Metal Workers*	1,554	167	\$27.09
Water and Wastewater Treatment Plant and System Operators*	1,479	120	\$34.30
Architectural and Civil Drafters*	1,102	112	\$25.21

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

Of the 39 community-college-level occupations in this sector, there are 11 occupations that are considered high-quality jobs. While the community colleges in the region currently offer programs that address many of these occupations, there are several for which there are currently no programs.

In particular, the occupation of carpenters is not addressed by programs in the region; this occupation is high wage and is projected to offer 1,956 annual openings in the region.

Other high-wage occupations that may warrant programs are:

- Plumbers, pipefitters, and steamfitters
- Operating engineers and other construction equipment operators
- Structural iron and steel workers

Colleges should consider partnering with unions representing these occupations to co-develop training programs and talent pipelines.

Health

With an increasing population and longer life expectancy, the health sector's employment needs will continue to grow. Health care employment refers to careers in public and private hospitals, medical facilities, ambulatory health centers, long-term and residential care facilities as well as public health and safety agencies.¹⁰ The health sector is one of the largest employers in the region with 236,493 jobs in 2020, accounting for about 25% of all jobs.

Community College Programs

Ten regional colleges offer 23 health programs, with the opportunity to offer 27 additional programs that are not currently in existence. Please note, the physicians assistants CE program leads to the physician assistants occupation, which typically requires a master's degree to enter employment. Nursing programs are available at multiple colleges (TOP codes 1230.10- registered nursing, 1230.20 licensed vocational nursing, 1230.30 – certified nurse assistant), but no colleges offer the four-digit TOP code 1230.00 - nursing program.

Exhibit 27. Health program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
0514.20 – Medical Office Technology	1202.00 – Hospital and Health Care Administration
1201.00 – Health Occupations, General	1205.00 – Medical Laboratory Technology
1205.10 – Phlebotomy	1206.00 – Physicians Assistant
1208.00 – Medical Assisting	1208.10 – Clinical Medical Assisting
1210.00 – Respiratory Care-Therapy	1208.20 – Administrative Medical Assisting
1221.00 – Pharmacy Technology	1208.30 – Health Facility Unit Coordinator
1225.00 – Radiologic Technology	1209.00 – Hospital Central Service Technician
1227.00 – Diagnostic Medical Sonography	1211.00 – Polysomnography
1228.00 – Athletic Training and Sports Medicine	1212.00 – Electro-Neurodiagnostic Technology
1230.10 – Registered Nursing	1213.00 – Cardiovascular Technician
1230.20 – Licensed Vocational Nursing	1214.00 – Orthopedic Assistant
1230.30 – Certified Nurse Assistant	1215.00 – Electrocardiography
1230.80 – Home Health Aide	1217.00 – Surgical Technician
1239.00 – Psychiatric Technician	1218.00 – Occupational Therapy Technology
1240.10 – Dental Assistant	1219.00 – Optical Technology
1240.20 – Dental Hygienist	1220.00 – Speech-Language Pathology and Audiology
1250.00 – Emergency Medical Services	1222.00 – Physical Therapist Assistant
1251.00 – Paramedic	1223.00 – Health Information Technology
1306.00 – Nutrition, Foods, and Culinary Arts	1223.10 – Health Information Coding
1306.20 – Dietetic Services and Management	1224.00 – School Health Clerk
1309.00 – Gerontology	
2104.40 – Alcohol and Controlled Substances	

¹⁰ READY Career Education Poster," Inland Empire/Desert Regional Consortium, 2018, retrieved June 29, 2021, <https://desertcolleges.org/posters.php>.

Existing Programs in the Region	Programs Not Offered in the Region
	1226.00 – Radiation Therapy Technician
	1230.00 – Nursing
	1240.00 – Dental Occupations
	1240.30 – Dental Laboratory Technician
	1261.00 – Community Health Care Worker
	1299.00 – Other Health Occupations
	1306.60 – Dietetic Technology

Source: Launchboard, COCI, College Catalogs, COE

Community-College-Level Occupations

There are 38 community-college-level occupations that fall within the health sector. In 2020, these occupations had an estimated 166,297 jobs and are projected to have 23,929 annual job openings through 2025. The median hourly earnings for these occupations range from \$13.54/hour to \$60.87/hour.

Exhibit 28. Health community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Home Health and Personal Care Aides*	60,606	13,261	\$13.54
Registered Nurses*	30,945	2,273	\$52.44
Medical Assistants*	9,749	1,225	\$17.02
Nursing Assistants*	8,369	1,161	\$17.28
Medical Secretaries and Administrative Assistants*	8,207	1,021	\$18.66
Licensed Practical and Licensed Vocational Nurses*	8,093	762	\$28.69
Dental Assistants*	5,290	629	\$18.69
Exercise Trainers and Group Fitness Instructors*	3,191	528	\$15.64
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other*	4,492	457	\$22.35
Pharmacy Technicians*	4,451	408	\$18.35
Emergency Medical Technicians and Paramedics*	3,381	256	\$18.87
Phlebotomists*	1,426	172	\$21.82
Healthcare Support Workers, All Other	1,319	171	\$23.39
Clinical Laboratory Technologists and Technicians	1,856	161	\$24.77

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Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Dental Hygienists*	1,938	157	\$47.64
Psychiatric Technicians*	1,558	144	\$30.25
Radiologic Technologists and Technicians*	1,654	126	\$40.35
Respiratory Therapists*	1,629	123	\$36.40
Physical Therapist Assistants	598	117	\$31.46
Surgical Technologists	855	97	\$27.22
Medical Equipment Preparers	630	84	\$22.44
Opticians, Dispensing	811	72	\$18.49
Occupational Therapy Assistants	352	61	\$32.56
Health Information Technologists, Medical Registrars, Surgical Assistants, and Healthcare Practitioners and Technical Workers,	758	57	\$23.86
Diagnostic Medical Sonographers*	715	57	\$45.65
Community Health Workers*	356	52	\$23.61
Medical Transcriptionists*	402	50	\$21.53
Ophthalmic Medical Technicians	535	46	\$18.52
Cardiovascular Technologists and Technicians	499	35	\$33.58
Dietetic Technicians*	386	35	\$16.55
Ophthalmic Laboratory Technicians	253	29	\$20.09
Psychiatric Aides*	191	28	\$26.68
Dental Laboratory Technicians	240	26	\$18.65
Magnetic Resonance Imaging Technologists	251	19	\$49.87
Medical Appliance Technicians	74	9	\$21.78
Nuclear Medicine Technologists	126	9	\$54.86
Radiation Therapists	96	8	\$60.87
Occupational Therapy Aides	15	3	\$13.85
TOTAL	166,297	23,929	\$13.54 to \$60.87

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

For this study, an occupation is considered in demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high wage if the median hourly wage meets or exceeds \$20.86 per hour. The 11 occupations below are considered high quality because they meet both criteria.

Exhibit 29. Health high-quality community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Registered Nurses*	30,945	2,273	\$52.44
Licensed Practical and Licensed Vocational Nurses*	8,093	762	\$28.69
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other*	4,492	457	\$22.35
Phlebotomists*	1,426	172	\$21.82
Healthcare Support Workers, All Other	1,319	171	\$23.39
Clinical Laboratory Technologists and Technicians	1,856	161	\$24.77
Dental Hygienists*	1,938	157	\$47.64
Psychiatric Technicians*	1,558	144	\$30.25
Radiologic Technologists and Technicians*	1,654	126	\$40.35
Respiratory Therapists*	1,629	123	\$36.40
Physical Therapist Assistants	598	117	\$31.46

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Health employment opportunities that met either the in-demand or high-wage criteria, but not both, were further examined for this study. Occupations were analyzed that have fewer than 100 annual job openings but at least 500 combined annual job openings in neighboring counties (Los Angeles, San Diego, Orange, and Imperial). Occupations were included that fell short of the high-wage threshold (\$20.86 per hour) at the median level, but that exceed this criterion at the experienced level, 75th percentile.

Exhibit 30. Health community-college-level occupations that are either high wage or in demand, but not both

Occupations	Annual Job Openings In Region	Annual Job Openings In 4 Counties	Median Hourly Earnings	Experienced Hourly Earnings
Medical Secretaries and Administrative Assistants*	1,021	6,405	\$18.66	\$24.17
Dental Assistants*	629	2,998	\$18.69	\$22.53
Exercise Trainers and Group Fitness Instructors*	528	4,042	\$15.64	\$24.82
Pharmacy Technicians*	408	1,718	\$18.35	\$22.71
Emergency Medical Technicians and Paramedics*	256	866	\$18.87	\$24.54
Medical Transcriptionists*	50	514	\$21.53	\$25.15

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

The health sector consists of 38 community-college-level occupations in the region with 11 occupations that are considered high-wage jobs. There are only three high-wage occupations for which no programs currently exist:

- Healthcare support workers, all other
- Clinical laboratory technologists and technicians
- Physical therapist assistants

However, these occupations have relatively low annual openings, from 117 to 171 in the region, and given the expense of starting health programs, caution may be warranted before embarking on new programs to address these occupations.

Information and Communications Technology (ICT)/Digital Media

Job activities in the information and communications technologies (ICT)/Digital media sector range from protecting computer infrastructure from cyber-attacks to the latest offerings in digital entertainment.

According to the North American Classification System, ICT activities can be organized into four categories:

- Writing, modifying, testing, and supporting software;
- Planning and designing computer systems that integrate computer hardware, software, and communication technologies;
- On-site management and operation of clients' computer systems and/or data processing facilities; and
- Providing other professional and technical computer-related advice and services.¹¹

By contrast, the digital media sector involves the design, management, and production of digital communication, including printed materials. Technical, artistic, and analytical skills are often required for digital media professionals.¹² The ICT/digital media sector accounted for 22,829 jobs in 2020, about 1% of total jobs in the region.

Community College Programs

The community colleges in the region offer 29 ICT/digital media programs, with the opportunity to offer seven additional programs that are not currently in existence. All 12 community colleges offer programs related to this sector in the region.

Exhibit 31. ICT/digital media program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
0514.00 – Office Technology-Office Computer Applications	0604.30 – Broadcast Journalism
0602.00 – Journalism	0607.00 – Technical Communication
0604.00 – Radio and Television	0610.00 – Mass Communications
0604.10 – Radio	0699.00 – Other Media and Communications
0604.20 – Television (including combined TV-film-video)	0709.10 – E-Commerce (technology emphasis)
0612.20 – Film Production	0799.00 – Other Information Technology
0614.00 – Digital Media	1013.00 – Commercial Art
0614.10 – Multimedia	
0614.20 – Electronic Game Design	
0614.30 – Website Design and Development	
0614.40 – Animation	
0614.50 – Desktop Publishing	
0614.60 – Computer Graphics and Digital Imagery	

¹¹ “North American Industry Classification System (NAICS),” U.S. Census Bureau, 2017, retrieved June 29, 2021, <https://www.census.gov/naics/?99967>.

¹² Ibid.

Existing Programs in the Region	Programs Not Offered in the Region
0701.00 – Information Technology, General	
0702.00 – Computer Information Systems	
0702.10 – Software Applications	
0707.00 – Computer Software Development	
0707.10 – Computer Programming	
0707.20 – Database Design and Administration	
0707.30 – Computer Systems Analysis	
0708.00 – Computer Infrastructure and Support	
0708.10 – Computer Networking	
0708.20 – Computer Support	
0709.00 – World Wide Web Administration	
0934.30 – Telecommunications Technology	
1005.00 – Commercial Music	
1012.00 – Applied Photography	
1030.00 – Graphic Art and Design	
2206.10 – Geographic Information Systems	

Source: Launchboard, COCI, College Catalogs, COE

Community-College-Level Occupations

There are 26 community-college-level occupations that fall within the ICT/digital media sector. In 2020, these occupations had an estimated 44,316 jobs and are projected to have 4,426 annual job openings through 2025. The median hourly earnings for these occupations range from \$16.78/hour to \$41.67/hour.

Exhibit 32. ICT/digital media community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive*	19,431	2,015	\$20.67
Executive Secretaries and Executive Administrative Assistants*	3,585	357	\$31.50
Telecommunications Equipment Installers and Repairers, Except Line Installers*	3,064	334	\$27.84
Computer User Support Specialists*	3,158	275	\$27.91
Graphic Designers*	2,019	184	\$21.54
Data Entry Keyers*	1,658	162	\$16.78
Telecommunications Line Installers and Repairers*	1,246	136	\$27.77
Photographers*	1,383	132	\$23.03
Network and Computer Systems Administrators*	1,666	122	\$41.67
Web Developers and Digital Interface Designers*	1,398	114	\$28.75

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Legal Secretaries and Administrative Assistants*	1,109	111	\$17.53
Computer, Automated Teller, and Office Machine Repairers*	950	94	\$18.80
Computer Network Support Specialists*	834	73	\$28.48
Surveying and Mapping Technicians*	553	72	\$23.91
Audio and Video Technicians*	517	59	\$27.99
Special Effects Artists and Animators*	381	38	\$19.83
Film and Video Editors*	225	28	\$30.63
Camera Operators, Television, Video, and Film*	197	21	\$25.05
Lighting Technicians and Media and Communication Equipment Workers, All Other	186	20	\$35.78
Broadcast Announcers and Radio Disc Jockeys*	223	20	\$18.19
Audiovisual Equipment Installers and Repairers	139	15	\$19.63
Sound Engineering Technicians*	109	14	\$29.43
Radio, Cellular, and Tower Equipment Installers and Repairers	102	12	\$27.13
Broadcast Technicians*	111	11	\$28.31
Desktop Publishers*	41	4	\$26.56
Camera and Photographic Equipment Repairers	31	3	\$18.98
TOTAL	44,316	4,426	\$16.78 to \$41.67

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

For this study, an occupation is considered in demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high wage if the median hourly wage meets or exceeds \$20.86 per hour. The occupations below are considered high quality because they meet both criteria.

Exhibit 33. ICT/digital media high-quality community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Executive Secretaries and Executive Administrative Assistants*	3,585	357	\$31.50
Telecommunications Equipment Installers and Repairers, Except Line Installers*	3,064	334	\$27.84
Computer User Support Specialists*	3,158	275	\$27.91
Graphic Designers*	2,019	184	\$21.54
Telecommunications Line Installers and Repairers*	1,246	136	\$27.77
Photographers*	1,383	132	\$23.03
Network and Computer Systems Administrators*	1,666	122	\$41.67
Web Developers and Digital Interface Designers*	1,398	114	\$28.75

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

ICT/digital media employment opportunities that met either the in-demand or high-wage criteria, but not both, were further examined for this study. Occupations were analyzed that have fewer than 100 annual job openings but at least 500 combined annual job openings in neighboring counties (Los Angeles, San Diego, Orange, and Imperial). Occupations were included that fell short of the high-wage (\$20.86 per hour) at the median level but that exceed this criterion at the experienced level, 75th percentile.

Exhibit 34. ICT/digital media community-college-level occupations that are either high wage or in demand, but not both

Occupations	Annual Job Openings In Region	Annual Job Openings In 4 Counties	Median Hourly Earnings	Experienced Hourly Earnings
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive*	2,015	13,143	\$20.67	\$25.20
Legal Secretaries and Administrative Assistants*	111	1,673	\$17.53	\$24.78
Computer, Automated Teller, and Office Machine Repairers*	94	660	\$18.80	\$24.46
Computer Network Support Specialists*	73	627	\$28.48	\$36.54
Audio and Video Technicians*	59	879	\$27.99	\$36.16
Special Effects Artists and Animators*	38	914	\$19.83	\$35.31
Film and Video Editors*	28	1,085	\$30.63	\$55.25

Occupations	Annual Job Openings In Region	Annual Job Openings In 4 Counties	Median Hourly Earnings	Experienced Hourly Earnings
Camera Operators, Television, Video, and Film*	21	510	\$25.05	\$37.75
Lighting Technicians and Media and Communication Equipment Workers, All Other	20	832	\$35.78	\$46.19

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

The ICT/digital media sector encompasses 26 community-college-level occupations, eight of which are considered high-quality jobs. The community colleges in the region currently address all eight occupations through existing programs.

One occupation that is high-wage and that has a substantial number of annual openings in the four counties bordering the Inland Empire/Desert Region is lighting technicians and media and communication equipment workers, all other. This occupation has median hourly earnings of \$35.78 and 823 annual openings in the four-county area. The community colleges may want to consider program development to address this occupation.

Life Sciences/Biotech

Life sciences and biotechnology is comprised of businesses that employ biological scientific knowledge and processes in areas such as drugs and pharmaceuticals, medical devices and testing, and agricultural feedstock and chemicals. Programs in this sector train students to combat diseases, reduce our environmental footprint, and create efficient industrial processes.¹³ In 2020, there were 1,185 life science and biotechnology jobs in the region, accounting for 0.07% of all industry jobs.

The region does not currently offer programs in this sector.

Community College Programs

The regional community colleges do not offer any life sciences/biotech programs.

Exhibit 35. Life sciences/biotech program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
No programs offered	0430.00 – Biotechnology and Biomedical Technology 0934.60 – Biomedical Instrumentation 0934.70 – Electron Microscopy 0954.00 – Chemical Technology 0955.00 – Laboratory Science Technology

Source: Launchboard, COCI, College Catalogs, COE

Community-College-Level Occupations

There are four community-college-level occupations that fall within the life sciences/biotech sector. These occupations had an estimated 1,300 jobs in 2020 and are projected to have 136 annual job openings through 2025. The median hourly earnings for these occupations range from \$21.42/hour to \$25.94/hour.

Exhibit 36. Life sciences/biotech community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Medical Equipment Repairers	587	64	\$23.49
Chemical Technicians	300	28	\$23.86
Chemical Equipment Operators and Tenders	257	28	\$25.94
Chemical Plant and System Operators	156	16	\$21.42
TOTAL	1,300	136	\$21.42 to \$25.94

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

¹³ "Life Sciences & Biotech," California Community Colleges Career Education, 2021, retrieved July 8, 2021, <https://careered.cccco.edu/explore-careers/prospective-students/life-sciences-biotech/>.

High-Quality Occupations

No life science/biotechnology occupations meet the high-quality job criteria due to the low number of annual job openings in the region.

Key Findings and Recommendations

Within the life sciences/biotech sector, only four occupations are categorized as requiring a community college education. While each of these jobs offers a high wage at the median level, these jobs do not meet the in-demand criterion. Students willing to commute outside of the region will find fewer than 500 projected annual job openings in neighboring Southern California counties. Colleges considering developing life science/biotech sector programs should first conduct an inventory of training programs in neighboring counties.

Public Safety Career Cluster

Public safety career cluster services are generally provided by local, state, and federal government entities for the benefit of residents.¹⁴ This sector encompasses everything from public safety and emergency response to community outreach. Public safety career cluster employers reported 128,280 jobs in 2020, accounting for 7.4% of the total jobs in the region.

Community College Programs

The community colleges in the region offer eight public safety and government programs, with the opportunity to offer two additional programs that are not currently in existence. All 12 community colleges offer programs related to this sector in the region.

Exhibit 37. Public safety and government program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
2105.00 – Administration of Justice	2105.20 – Probation and Parole
2105.10 – Corrections	2133.10 – Wildland Fire Technology
2105.30 – Industrial and Transportation Security	
2105.40 – Forensics, Evidence, and Investigation	
2105.50 – Police Academy	
2133.00 – Fire Technology	
2133.50 – Fire Academy	
2199.00 – Other Public and Protective Services	

Source: Launchboard, COCI, College Catalogs, COE

Community-College-Level Occupations

There are 13 community-college-level occupations that fall within the public safety and government sector. In 2020, these occupations had an estimated 18,554 jobs and are projected to have 1,652 annual job openings through 2025. The median hourly earnings for these occupations range from \$25.06/hour to \$77.87/hour.

Exhibit 38. Public safety and government community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Police and Sheriffs Patrol Officers*	6,094	524	\$50.43
Correctional Officers and Jailers*	5,348	481	\$40.99
Firefighters*	2,985	254	\$32.42

¹⁴ “Public Safety and Service,” California Community Colleges Career Education, 2021, retrieved July 8, 2021, <https://careered.cccco.edu/explore-careers/prospective-students/public-safety/>.

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Miscellaneous First-Line Supervisors, Protective Service Workers	1,181	137	\$25.79
Detectives and Criminal Investigators*	1,038	81	\$50.86
First-Line Supervisors of Correctional Officers*	633	47	\$50.90
First-Line Supervisors of Police and Detectives*	392	37	\$77.87
Transportation Security Screeners*	348	36	\$25.06
First-Line Supervisors of Firefighting and Prevention Workers*	307	27	\$53.47
Fire Inspectors and Investigators*	68	9	\$37.31
Forest Fire Inspectors and Prevention Specialists*	67	9	\$35.37
Bailiffs*	38	5	\$30.37
Transit and Railroad Police*	55	5	\$30.81
TOTAL	18,554	1,652	\$25.06 to \$77.87

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

For this study, an occupation is considered in demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high wage if the median hourly wage meets or exceeds \$20.86 per hour. The occupations below are considered high quality because they meet both criteria. Please note, miscellaneous first-line supervisors, protective services workers directly supervise and coordinate activities of security workers and security guards.

Exhibit 39. Public safety and government high-quality community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Police and Sheriffs Patrol Officers*	6,094	524	\$50.43
Correctional Officers and Jailers*	5,348	481	\$40.99
Firefighters*	2,985	254	\$32.42
Miscellaneous First-Line Supervisors, Protective Service Workers	1,181	137	\$25.79

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Public safety and government employment opportunities that met either the in-demand or high-wage criteria, but not both, were further examined for this study. Occupations were analyzed that have fewer than 100 annual job openings but at least 500 combined annual job openings in neighboring counties (Los Angeles, San Diego, Orange, and Imperial). Occupations were included that fell short of the high-wage threshold (\$20.86 per hour) at the median level, but that exceed this criterion at the experienced level, 75th percentile.

Exhibit 40. Public safety community-college-level occupations that are either high wage or in demand, but not both

Occupations	Annual Job Openings In Region	Annual Job Openings In 4 Counties	Median Hourly Earnings	Experienced Hourly Earnings
Detectives and Criminal Investigators*	81	652	\$50.86	\$62.01

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

Of the 13 community-college-level occupations that make up the public safety sector, four are considered high-quality jobs. Community colleges in the region currently offer programs related to three of these occupations. However, one occupation is currently not addressed by existing programs: miscellaneous first-line supervisors, protective service workers. The community colleges in the region may want to evaluate whether existing programs could be modified to address this occupation. Caution may be warranted as this occupation is only projected to offer 137 annual openings in the region, a fairly low number compared to other occupations in this sector.

Retail, Hospitality, and Tourism

The retail, tourism, and hospitality sector encompasses lodging, restaurants, retail stores, theme parks, cruise lines, and other tourism services. Retail trade primarily engages in the sale of merchandise, while the hospitality and tourism sector primarily provides services related to lodging, food service, and local attractions.¹⁵ Retail, hospitality, and tourism employers reported 302,626 jobs in 2020, accounting for 17.5% of the total jobs in the region.

Community College Programs

The community colleges in the region offer 11 retail, hospitality, and tourism programs, with the opportunity to offer 10 additional programs that are not currently in existence. Nine community colleges offer programs related to this sector in the region. The three colleges without programs are Barstow College, Moreno Valley College, and Palo Verde College.

Exhibit 41. Retail, hospitality, and tourism program inventory summary

Existing Programs in the Region	Programs Not Offered in the Region
0506.50 – Retail Store Operations and Management	0509.60 – Display
0514.40 – Office Management	0516.00 – Labor and Industrial Relations
0835.70 – Aquatics and Lifesaving	0606.00 – Public Relations
1302.00 – Interior Design and Merchandising	0959.10 – Diving and Underwater Safety
1303.10 – Fashion Design	1301.00 – Family and Consumer Sciences, General
1303.20 – Fashion Merchandising	1301.10 – Consumer Services
1306.30 – Culinary Arts	1303.00 – Fashion
1307.00 – Hospitality	3008.00 – Dry Cleaning
1307.10 – Restaurant and Food Services and Management	3009.00 – Travel Services and Tourism
1307.20 – Lodging Management	3020.40 – Flight Attendant
1307.30 – Resort and Club Management	

Source: Launchboard, COCI, College Catalogs, COE

Community-College-Level Occupations

There are 15 community-college-level occupations that fall within the retail, hospitality, and tourism sector. In 2020, these occupations had an estimated 36,186 jobs and are projected to have 4,509 annual job openings through 2025. The median hourly earnings for these occupations range from \$14.56/hour to \$57.60/hour.

¹⁵ “North American Industry Classification System (NAICS),” U.S. Census Bureau, 2017, retrieved June 29, 2021, <https://www.census.gov/naics/?99967>.

Exhibit 42. Retail, hospitality, and tourism community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
First-Line Supervisors of Retail Sales Workers*	15,509	1,618	\$20.84
First-Line Supervisors of Food Preparation and Serving Workers*	9,187	1,510	\$18.06
Food Service Managers*	4,750	522	\$23.67
First-Line Supervisors of Housekeeping and Janitorial Workers	2,049	256	\$21.13
Chefs and Head Cooks*	1,126	145	\$26.78
First-Line Supervisors of Gambling Services Workers	771	127	\$28.33
Reservation and Transportation Ticket Agents and Travel Clerks	817	82	\$15.47
Tour and Travel Guides	431	74	\$15.93
Gambling Managers*	400	45	\$40.80
Travel Agents	393	45	\$21.53
Lodging Managers*	353	34	\$32.91
Passenger Attendants	154	25	\$17.95
Fashion Designers*	176	18	\$33.07
Flight Attendants	67	7	\$57.60
Cooks, Private Household*	<10	1	\$14.56
TOTAL	36,186	4,509	\$14.56 to \$57.60

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

High-Quality Occupations

For this study, an occupation is considered in demand if it has 100 annual job openings or more over the next five years in the region. Occupations are considered high wage if the median hourly wage meets or exceeds \$20.86 per hour. The occupations below are considered high quality because they meet both criteria.

Exhibit 43. Retail, hospitality, and tourism high-quality community-college-level occupations

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
Food Service Managers*	4,750	522	\$23.67

Occupations	2020 Jobs	Annual Job Openings	Median Hourly Earnings
First-Line Supervisors of Housekeeping and Janitorial Workers	2,049	256	\$21.13
Chefs and Head Cooks*	1,126	145	\$26.78
First-Line Supervisors of Gambling Services Workers	771	127	\$28.33

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Retail, hospitality, and tourism employment opportunities that met either the in-demand or high-wage criteria, but not both, were further examined for this study. Occupations were analyzed that have fewer than 100 annual job openings but at least 500 combined annual job openings in neighboring counties (Los Angeles, San Diego, Orange, and Imperial). Occupations were included that fell short of the high-wage threshold (\$20.86 per hour) at the median level, but that exceed this criterion at the experienced level, 75th percentile.

Exhibit 44. Retail, hospitality, and tourism community-college-level occupations that are either high wage or in demand, but not both

Occupations	Annual Job Openings In Region	Annual Job Openings In 4 Counties	Median Hourly Earnings	Experienced Hourly Earnings
First-Line Supervisors of Retail Sales Workers*	1,618	7,855	\$20.84	\$26.28
First-Line Supervisors of Food Preparation and Serving Workers*	1,510	7,101	\$18.06	\$23.77
Reservation and Transportation Ticket Agents and Travel Clerks	82	1,087	\$15.47	\$21.14
Travel Agents	45	517	\$21.53	\$27.83
Fashion Designers*	18	517	\$33.07	\$48.90
Flight Attendants	7	1,540	\$57.60	\$65.32

Source: Emsi 21.2 * denotes occupation has a related community college program(s)

Key Findings and Recommendations

Fifteen community-college-level occupations are associated with the retail, hospitality, and tourism sector. Of these, four meet the criteria for high-quality jobs. Two high-quality occupations are currently without related training programs in the region:

- First-line supervisors of housekeeping and janitorial workers
- First-line supervisors of gambling services workers

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In addition, there are several occupations—all related to the travel industry—that pay a high wage and have a substantial number of annual openings in the four counties bordering the region for which no local programs currently exist:

- Reservation and transportation ticket agents and travel clerks
- Travel agents
- Flight attendants

The community colleges in the region may want to evaluate whether program development is warranted to address these occupations.

Conclusion and Recommendations

The 12 community colleges in the Inland Empire/Desert Region offer a vast number of programs that align with the majority of occupations associated with the 10 priority CE sectors and one emerging sector. This indicates that the regional colleges have done an outstanding job meeting the projected need for qualified workers. Further, the colleges have programs in place that provide the knowledge, skills, and abilities that lead to high-quality jobs, jobs that are both in demand and offer a high wage. Exhibit 45 displays a summary of the employment opportunities in each sector.

Exhibit 45. Count of community college occupations and projected annual job openings for community-college-level occupations and high-quality jobs

CCCCO Sector	Count of Community-College-Level Occupations	Community-College-Level Annual Job Openings for	High-Quality Annual Job Openings
Advanced Manufacturing	33	4,649	2,216
Advanced Transportation and Logistics	34	11,115	7,644
Agriculture, Water, and Environmental Technologies	11	926	516
Business and Entrepreneurship	39	15,784	9,421
Education and Human Development	8	5,889	254
Energy, Construction, and Utilities	39	7,227	6,367
Health	38	23,929	4,663
ICT/Digital Media	26	4,426	1,654
Life Sciences/Biotech	4	136	0
Public Safety Career Cluster	13	1,652	1,396
Retail, Tourism, and Hospitality	15	4,509	1,050

Source: Emsi 21.2

Exhibit 46 further refines the count of high-quality annual job openings and shows the occupations that are currently without regional training programs. There are 18 high-quality community-college-level occupations in six CCCCCO sectors that currently lack training programs in the region.

Exhibit 46. High-quality occupations without existing training programs in the region

CCCCO Sector	Occupation	Annual Job Openings
Advanced Transportation and Logistics	Heavy and Tractor-Trailer Truck Drivers	4,120
	Mobile Heavy Equipment Mechanics, Except Engines	213
	Bus Drivers, Transit and Intercity	143
Business and Entrepreneurship	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	990
	Insurance Sales Agents	528
	First-Line Supervisors of Non-Retail Sales Workers	301
	Human Resources Assistants, Except Payroll and Timekeeping	129
	Claims Adjusters, Examiners, and Investigators	112
Energy, Construction, and Utilities	Carpenters	1,956
	Plumbers, Pipefitters, and Steamfitters	691
	Operating Engineers and Other Construction Equipment Operators	502
	Structural Iron and Steel Workers	192
Health	Healthcare Support Workers, All Other	171
	Clinical Laboratory Technologists and Technicians	161
	Physical Therapist Assistants	117
Public Safety Career Cluster	Miscellaneous First-Line Supervisors, Protective Service Workers	137
Retail, Hospitality, and Tourism	First-Line Supervisors of Housekeeping and Janitorial Workers	256
	First-Line Supervisors of Gambling Services Workers	127

Source: Emsi 21.2

- More than 4,100 annual openings are projected for heavy and tractor-trailer truck drivers in the advanced transportation and logistics sector, and 143 annual job openings are projected for bus drivers in the region. For colleges not interested in developing truck or bus driving programs, they may consider a program that prepares mobile heavy equipment mechanics, except engines, by utilizing infrastructure and equipment available in existing automotive technology programs, if appropriate.
- The business and entrepreneurship sector has the highest number of high-quality occupations that currently lack training programs, a total of five occupations. Some of these occupations are highly concentrated in specific industries. For example, 88% of insurance sales agents and claims

adjusters are employed in the insurance carriers and related activities subsector. Employment for some occupations are distributed across multiple industries, such as human resources assistants. These occupations may require general knowledge, skills, and abilities training in addition to industry-specific training, depending on the requirements of employers seeking these workers.

- The energy, construction, and utilities sector is a promising area for jobs in the current economy. There are five high-quality occupations without training programs in the region. The community colleges may want to consider developing a program to train carpenters as this occupation is projected to have more than 1,900 annual openings in the region. Colleges should consider partnering with unions representing these occupations to co-develop training programs and talent pipelines.
- The public safety and retail, hospitality, and tourism sectors are expected to have many first-line supervisor annual job openings, presenting an opportunity for the colleges to develop sector-related leadership programs for students looking to up-skill or advance their careers.

Appendix A: Terms and Definitions

Education Levels

1. **Bachelor's Degree:** Occupations that are typically trained by a four-year university.
2. **Community College:** Occupations that require more education than a high school diploma but less than a bachelor's degree. This category was previously noted as middle-skill
3. **High School Diploma:** Occupations that require a high school diploma or equivalent, such as a GED.

Labor Market Information

1. **Annual Job Openings:** A combination of projected new jobs and replacement job openings expected annually.
2. **High-quality job:** Occupations that meet both the in demand and high wage criteria in the region.
3. **High wage:** Occupations that provide a median hourly rate of \$20.86 or more per hour.
4. **In demand:** Occupations that are expected to have at least 100 annual job openings during the 2020-2025 projection period.
5. **Median Hourly Earnings:** 50th percentile pre-tax hourly earnings reported by employers. Half of workers in the occupation make more than the median rate, and half make less. Includes commission and tips, but not bonuses, holiday premium pay, or overtime.
6. **Occupation:** Professions or careers in the workforce. Occupations contain multiple job titles that are commonly used by employers. [O*Net](#) provides resources that link job titles to occupations.

Appendix B: Regional Community College Program Inventory by Sector

Exhibit B1. Advanced manufacturing program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0924.00 – Engineering Technology, General		*										
0934.00 – Electronics and Electric Technology								*			*	*
0934.10 – Computer Electronics											*	*
0936.00 – Printing and Lithography										*		
0945.00 – Industrial Systems Technology and Maintenance	*	*									*	
0950.00 – Aeronautical and Aviation Technology		*									*	*
0950.40 – Aircraft Electronics (Avionics)											*	
0950.50 – Aircraft Fabrication												*
0953.40 – Mechanical Drafting		*						*				
0956.00 – Manufacturing and Industrial Technology								*			*	
0956.30 – Machining and Machine Tools								*			*	
0956.50 – Welding Technology	*								*	*	*	*
1303.30 – Fashion Production		*										
Programs Not Offered in the Region												
0934.20 – Industrial Electronics												
0934.80 – Laser and Optical Technology												
0935.10 – Appliance Repair												
0943.00 – Instrumentation Technology												
0943.30 – Vacuum Technology												
0953.30 – Electrical, Electronic, and Electro-Mechanical Drafting												
0953.60 – Technical Illustration												
0954.20 – Plastics and Composites												
0954.30 – Petroleum Technology												
0956.70 – Industrial and Occupational Safety and Health												
0956.80 – Industrial Quality Control												
0957.30 – Surveying												

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0961.00 – Optics												
1920.00 – Ocean Technology												

Source: Launchboard, COCI, College Catalogs, COE

TOP6 – Program Title	Regional Community College Program Titles
0924.00 - Engineering Technology, General (requires Trigonometry)	Engineering Technology
0934.00 - Electronics and Electric Technology	Digital Electronics, Electronics Engineering Technology: Electronics Emphasis, Electronics Technology, General Electrician
0934.10 - Computer Electronics	Computer Engineering Technology, Electronics and Computer Technology
0936.00 - Printing and Lithography	Graphic Design and Printing
0945.00 - Industrial Systems Technology and Maintenance	Industrial Automation, Industrial Maintenance Electrical and Instrumentation, Industrial Maintenance Electrical and Instrumentation, Level 2, Industrial Maintenance Mechanic, Industrial Maintenance Mechanic Skills Builder I, Industrial Maintenance Mechanic Skills Builder II, Industrial Maintenance Mechanic Skills Builder III, Industrial Maintenance Mechanic Technology, Level 1, Industrial Maintenance Mechanic Technology, Level 3
0950.00 - Aeronautical and Aviation Technology	Aircraft Electrical and Avionics Technician, Aviation Maintenance , Aviation Maintenance Technician, Aviation Maintenance Technology, Flight Operations and Management, GENERAL AIRCRAFT MAINTENANCE TECHNICIAN
0950.40 - Aircraft Electronics (Avionics)	Avionics Technology
0950.50 - Aircraft Fabrication	Composite Aerospace Manufacturing
0953.40 - Mechanical Drafting	3-D Mechanical Drafting, Drafting Technician: Mechanical
0956.00 - Manufacturing and Industrial Technology	Basic Operations Computerized Numerical Control (CNC), Computer Numerical Control – CAD & CAM, Computerized Numerical Control (CNC) Operator, CONVENTIONAL MACHINE OPERATOR, Industrial Automation, Supply Chain Automation
0956.30 - Machining and Machine Tools	Basic Machine Operator, Computer Numerical Control Programming, Machine Technology, Machinist Standard, Tool and Die
0956.50 - Welding Technology	Flux Cored Arc Welding (FCAW), Gas Metal Arc Welding (GMAW), Gas Tungsten Arc Welding (GTAW), Pipe Welding, Shielded Metal Arc Welding (SMAW), Welding, Welding Inspection Technology, Welding Job Readiness, Welding Technology
1303.30 - Fashion Production	Custom Dressmaking

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • 3-D Printing and Rapid Prototyping • Basic Machining • CAD/CAM Operator • Pipe Welding • Stick Welding (SMAW) • TIG Welding (GTAW) • Wire Welding (FCAW, GMAW)

Exhibit B2. Advanced transportation and logistics program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0510.00 – Logistics and Materials Transportation	*	*						*				
0947.00 – Diesel Technology	*										*	
0948.00 – Automotive Technology	*	*	*		*		*		*	*	*	*
0948.40 – Alternative Fuels and Advanced Transportation Technology			*		*							
0949.00 – Automotive Collision Repair										*	*	
0949.10 – Upholstery Repair – Automotive										*		
0950.10 – Aviation Airframe Mechanics		*									*	*
0950.20 – Aviation Powerplant Mechanics		*									*	*
3020.00 – Aviation and Airport Management and Services											*	
Programs Not Offered in the Region												
0947.20 – Heavy Equipment Maintenance												
0947.30 – Heavy Equipment Operation												
0947.40 – Railroad and Light Rail Operations												
0947.50 – Truck and Bus Driving												
0948.30 – Motorcycle, Outboard and Small Engine Repair												
0948.50 – Recreational Vehicle Service												

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0959.00 – Marine Technology												
3020.10 – Aviation and Airport Management												
3020.20 – Piloting												
3020.30 – Air Traffic Control												

TOP6 – Program Title	Regional Community College Program Titles
0510.00 - Logistics and Materials Transportation	Business Administration: Logistics Management, Facilities Management, Logistics Management, Supply Chain Management, Warehousing & Logistics, Warehousing & Logistics Level 2
0947.00 - Diesel Technology	Diesel Engine and Fuel Injection Technology, Diesel Technology, Heavy/Medium Duty Clean Vehicle Technology, Heavy/Medium Duty Diesel Truck Technology
0948.00 - Automotive Technology	Air Conditioning and Heating and Services and Repair, ASE Engine Performance and Electric Specialist, ASE Powertrain Specialist, ASE Undercar Specialist, Automatic and Manual Transmission, Automotive Air Conditioning, Automotive Alternate Propulsion, Automotive Brake and Suspension Specialist Technician, Automotive Braking Systems, Automotive Detailer and Porter , Automotive Electrical, Automotive Emissions, Automotive Engine Management, Automotive Hybrid and Electric Vehicle, Automotive Quick Service, Automotive Service Advisor and Manager, Automotive Technician, Automotive Technology, Automotive Technology: Electrical, Automotive Technology: Mechanical, Automotive Terminology, Automotive Transmission & Axle, Automotive Transmission Specialist Technician, Automotive/Transportation Technology, Engine Performance, Engine Performance (Smog Check) Technician, Engine Performance and Driveability, General Automotive Service, General Automotive Service Technician, Light & Medium Duty Diesel, Light Duty Automotive Service, Light Duty Diesel Technician, Master Automotive Technician, Preventative Maintenance, Steering and Suspension Service, Steering, Suspension & Alignment, Transmission Service, Repair, and Overhaul, Wheel Alignment and Brakes
0948.40 - Alternative Fuels and Advanced Transportation Technology	Advanced Transportation Technologies, Alternative Fuel Vehicles, Automotive Alternative Fuels, Hybrid, Fuel-Cell, Electric Vehicle
0949.00 - Automotive Collision Repair	Advanced Automotive Collision Repair and Refinishing, Automotive Collision Repair, Automotive Interiors, Automotive Refinishing and Paint, Basic Automotive Collision Repair and Refinishing, Street Rod Construction
0949.10 - Upholstery Repair - Automotive	Automotive Trim & Upholstery

TOP6 – Program Title	Regional Community College Program Titles
0950.10 - Aviation Airframe Mechanics	Airframe Maintenance Technician, Aviation Airframe Technician, Aviation Maintenance Technology Airframe
0950.20 - Aviation Powerplant Mechanics	Aviation Maintenance Technology Powerplant, Aviation Powerplant Technician, Powerplant Maintenance Technician
3020.0 - Aviation and Airport Management and Services	Flight Operations

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • Automotive Electrical Systems • Engine Performance Technician Employment Concentration • Engine Rebuilding • General Certification Technician Employment Concentration • High Performance Engines Building and Blueprinting

Exhibit B3. Agriculture, water, and environmental technologies program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0102.00 – Animal Science												*
0102.40 – Equine Science												*
0103.00 – Plant Science					*							*
0109.00 – Horticulture					*							*
0109.30 – Nursery Technology												*
0109.40 – Turfgrass Technology					*		*					
0112.00 – Agriculture Business, Sales and Service					*							
0115.00 – Natural Resources					*							*
0303.00 – Environmental Technology									*			
Programs Not Offered in Region												
0101.00 – Agriculture Technology and Sciences, General												
0102.10 – Veterinary Technician (Licensed)												

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Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0102.20 – Artificial Inseminator												
0102.30 – Dairy Science												
0103.10 – Agricultural Pest Control Advisor and Operator												
0104.00 – Viticulture, Enology, and Wine Business												
0109.10 – Landscape Design and Maintenance												
0109.20 – Floriculture -Floristry												
0113.00 – Food Processing and Related Technologies												
0114.00 – Forestry												
0115.10 – Parks and Outdoor Recreation												
0115.20 – Wildlife and Fisheries												
0116.00 – Agricultural Power Equipment Technology												
0199.00 – Other Agriculture and Natural Resources												

TOP6 – Program Title	Regional Community College Program Titles
0102.00 - Animal Science	Agricultural Animal Science, Animal Health Technician, Animal Science Specialist
0102.40 - Equine Science	Equine Science Specialist
0103.00 - Plant Science	Agricultural Plant Science, Agriculture Food Safety, Agriculture Irrigation Technician, Agriculture Office Assistant, Agriculture Office Professional, Agriculture Pest Management, Agriculture Plant Science, Agriculture Technician, General Agriculture, Plant Science, Plant Science Technician
0109.00 - Horticulture	Arborist Technician, Environmental Horticulture, Environmental Horticulture, Landscape & Irrigation Technician, Pest Management Technician
0109.30 - Nursery Technology	Horticulture Specialist, Landscape Specialist
0109.40 - Turfgrass Technology	Turf & Landscape Management, Turfgrass Management, Turfgrass Management Technician
0112.00 - Agriculture Business, Sales and Service	Agri-Business
0115.00 - Natural Resources	Desert Ecologist, Field Ranger, Natural Resources, Natural Resource Management Technician, Natural Resources

TOP6 – Program Title	Regional Community College Program Titles
0303.00 - Environmental Technology	Hazardous Materials Specialist

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • Agricultural Crop Science • Floral Design Technician • Golf and Grounds Concentration Employment Concentration • Irrigation Technician Concentration Employment Concentration • Landscaping Operation Employment Concentration • Viticulture, Enology, and Winery Technology Employment Concentration • Wine Hospitality and Salesmanship Employment Concentration

Exhibit B4. Business and entrepreneurship program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0501.00 – Business and Commerce, General	*	*	*		*	*		*		*		*
0502.00 – Accounting	*	*	*		*	*	*	*		*	*	
0504.00 – Banking and Finance		*										
0505.00 – Business Administration	*	*	*		*		*		*	*	*	*
0506.00 – Business Management	*	*		*		*	*	*		*		*
0506.30 – Management Development and Supervision		*			*							
0506.40 – Small Business and Entrepreneurship	*	*					*	*		*	*	
0508.00 – International Business and Trade		*								*		
0509.00 – Marketing and Distribution				*	*	*				*		
0511.00 – Real Estate		*				*	*	*		*	*	*
0511.10 – Escrow												*
0599.00 – Other Business and Management											*	

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3007.00 – Cosmetology and Barbering	*									*		
Programs Not Offered in Region												
0502.10 – Tax Studies												
0509.10 – Advertising												
0509.20 – Purchasing												
0509.40 – Sales and Salesmanship												
0509.70 – e-commerce (business emphasis)												
0512.00 – Insurance												
0514.10 – Legal Office Technology												
0518.00 – Customer Service												
1255.00 – Mortuary Science												
1262.00 – Massage Therapy												
3005.00 – Custodial Services												

TOP6 – Program Title	Regional Community College Program Titles
0501.00 - Business and Commerce, General	Arts Business Management, Business, Business Administration, Business Administration: General Business, General Business, Gig: The Solopreneurs Adventure, Small Business
0502.00 - Accounting	Accounting, Accounting Basics for Small Business, Accounting Paraprofessional, Bookkeeping, Business Administration: Accounting, Registered & Small Business Income Tax Preparer, Small Business Accounting, Small Business Payroll Accounting
0504.00 - Banking and Finance	Financial Planning
0505.00 - Business Administration	Business Administration, Business Management, General Business
0506.00 - Business Management	Business Administration, Business Administration: Human Resources, Business Administration: Management, Business Management, Management, Management/Supervision
0506.30 - Management Development and Supervision	Human Resource Generalist, Management: Supervision
0506.40 - Small Business and Entrepreneurship	Entrepreneurship, Entrepreneurship - General, Entrepreneurship - Real Estate, Entrepreneurship - Tax, Entrepreneurship and Innovation, Entrepreneurship: Getting Started, Entrepreneurship: Legal And Finance, Small Business Entrepreneur, Small Business/Entrepreneurship, Social Media for Business
0508.00 - International Business and Trade	International Business

TOP6 – Program Title	Regional Community College Program Titles
0509.00 - Marketing and Distribution	Business Administration: Marketing, Marketing Management, Social Media Marketing
0511.00 - Real Estate	Basic Business Real Estate, Business Administration: Real Estate, Business Real Estate Apprentice, Real Estate, Real Estate Salesperson, Real Estate Salesperson and Transaction
0511.10 - Escrow	Business Real Estate and Escrow
0514.00 - Office Technology/Office Computer Applications	Administrative Assistant, Administrative Office Professional, Applications and Information Systems, BI - Legal Office Specialist, BI - Marketing Specialist, BI - Medical Office Specialist, Business Education Technologies, Business Information Worker, Business Information Worker (BIW) Stage One, Business Information Worker (BIW) Stage Two , Business Information Worker-Mgr., Business Skills - MOSPrep: Microsoft Office Specialist, Business, Clerical , Business, Office Administration Technician, CISCO Certified Network Associate, CIT - Office Technology, Computer Systems I, Computer Systems II, Information Systems and Technology, Microsoft Excel , Microsoft Office , Microsoft Office Specialist, Microsoft Word, Office Administration, Office Assistant, Office Technology Fundamentals, Professional Administrative Assistant, Professional Office Skills
0599.0 - Other Business and Management	Leadership
3007.00 - Cosmetology and Barbering	Barbering Concepts, Cosmetology, Cosmetology Concepts, Cosmetology: Entrepreneurial, Cosmetology: Management & Supervision, Esthetician, Esthetician Concepts, Hairstyling Concepts, Manicuring Concepts

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • Accounting for Government and Not-For-Profit Organizations • Bookkeeping • Bookkeeping I • Business Information Analysis Employment Concentration • Business Literacy • Data Typist • Executive Office Professional • Gig Economy • Microsoft Applications Concentration Employment Concentration • Office Assistant • Office Services • Operations and Production Management • Payroll and Income Tax Preparer • Personal Finance • Project Management • Project Management Concentration Employment Concentration • Small Business Accounting • Small Business Management • Small Business Payroll Accounting

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • Spreadsheet Processor • Word Processor • Marketing • Social Media Specialist Employment Concentration • Real Estate Practice • Real Estate Salesperson and Transaction

Exhibit B5. Education and human development program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0802.00 – Educational Aide (Teacher Assistant)					*	*				*		
0802.10 – Educational Aide (Teacher Assistant), Bilingual					*							
0835.60 – Coaching										*		
0836.10 – Recreation Assistant					*							
0850.10 – Sign Language Interpreting							*			*		
1305.00 – Child Development-Early Care and Education	*	*	*	*	*	*	*	*	*	*	*	*
1305.20 – Children with Special Needs						*	*	*		*	*	
1305.40 – Preschool Age Child							*					
1305.50 – The School Age Child											*	
1305.60 – Parenting and Family Education											*	
1305.80 – Child Development Administration and Management				*	*						*	*
1305.90 – Infants and Toddlers						*	*			*	*	
Programs Not Offered in the Region												
0809.00 – Special Education												
0860.00 – Educational Technology												
0899.00 – Other Education												
1305.70 – Foster and Kinship Care												

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Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
1308.00 – Family Studies												

TOP6 – Program Title	Regional Community College Program Titles
0835.60 - Coaching	Exercise, Sport and Wellness: Coaching
0836.10 - Recreation Assistant	Adv. First Aid & Safety, CPR/AED
0850.10 - Sign Language Interpreting	Interpreter Preparation, Sign Language Interpreting
1305.00 - Child Development/Early Care and Education	Associate Teacher, California Preschool Foundations and Framework, Child Development, Child Development Level I, Child Development Level II, Child Development Level III, Child Development Level IV, Child Development-Teacher, Early Child Education/Assistant Teacher, Early Childhood Education, Early Childhood Education Assistant Teacher, Early Childhood Education Twelve Core Units, ECE, Teacher Certificate, ECE: Master Teacher, ECE: Teacher, Family Daycare, Level I: Associate Teacher, Level II: Teacher (pre-school), Master Teacher, Qualified Early Childhood Educator Certificate (Associate Teacher), Qualified Early Childhood Educator Certificate (Teacher), Teacher
1305.10 - Child and Adolescent Development	Child and Adolescent Development
1305.20 - Children with Special Needs	Early Childhood Intervention Assistant, Early Intervention and Inclusion
1305.40 - Preschool Age Children	Associate Teacher
1305.50 - The School Age Child	School-Age
1305.60 - Parenting and Family Education	Family Child Care Provider
1305.80 - Child Development Administration and Management	Early Childhood Education Site Supervisor, Family Child Care, Level III: Site Supervisor (pre-school), Site Supervisor
1305.90 - Infants and Toddlers	Infant and Toddler, Infant and Toddler Specialization, Infant Toddler Teacher

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • American Sign Language • Child Development - Administration • Child Development - Infants and Toddlers • Child Development - Special Needs • Child Development- Assistant • Child Development- Associate Teacher • Dual Diagnosis Employment Concentration • ECE/Assistant Teacher • ECE/Twelve Core Units • Education, Human Development, and Special Needs

Exhibit B6. Energy, construction, and utilities program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0201.00 - Architecture and Architectural Technology					*			*			*	
0299.00 - Other Architecture and Environmental Design					*			*			*	
0934.40 - Electrical Systems and Power Transmission		*									*	
0935.00 - Electro-Mechanical Technology		*										
0946.00 - Environmental Control Technology		*			*			*		*	*	
0946.10 - Energy Systems Technology					*				*		*	
0952.00 - Construction Crafts Technology							*		*			*
0952.20 - Electrical								*				
0953.00 - Drafting Technology			*		*			*				*
0953.10 - Architectural Drafting		*										*
0957.00 - Civil and Construction Management Technology					*							*
0957.20 - Construction Inspection					*			*			*	*
0958.00 - Water and Wastewater Technology							*				*	
2102.10 - Public Works												*

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Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
Programs Not Offered in Region												
0952.10 - Carpentry												
0952.30 - Plumbing, Pipefitting and Steamfitting												
0952.40 - Glazing												
0952.50 - Mill and Cabinet Work												
0952.60 - Masonry, Tile, Cement, Lath and Plaster												
0952.70 - Painting, Decorating, and Flooring												
0952.80 - Drywall and Insulation												
0952.90 - Roofing												
0953.20 - Civil Drafting												
0956.40 - Sheet Metal and Structural Metal												

TOP6 – Program Title	Regional Community College Program Titles
0201.00 - Architecture and Architectural Technology	Architectural Graphics, Architectural Technology, Architecture and Environmental Design, Building Information and 3D Modeling, Computer-Aided Drafting Technician
0934.40 - Electrical Systems and Power Transmission	Electric Power Technology, Green Technician, Industrial Electrical Technology, Industrial Electrical Technology Level I, Industrial Electrical Technology Level II, Industrial Electrical Technology Level III
0935.00 - Electro-Mechanical Technology	Electromechanical Technology Level 1, Mechatronics, Mechatronics Level I, Mechatronics Level II
0946.00 - Environmental Control Technology	Air Conditioning & Refrigeration, Air Properties & Economizer Perf, Apprenticeship: Manufacturing Technician 1, Apprenticeship: Manufacturing Technician 2, Building Automation Control, Building Energy Systems Professional in HVAC Technology, Building Inspection Technology, Commercial Gas Heating, Facilities Operations Technician, Green HVAC Commercial, Green HVAC Residential, Heat Pumps, Heating, Ventilation, Air Conditioning and Refrigeration, Heating, Ventilation, Air Conditioning and Refrigeration Level 1, Heating, Ventilation, Air Conditioning and Refrigeration Level 2, HVAC Commercial Technology, HVAC Residential Technology, Proper

TOP6 – Program Title	Regional Community College Program Titles
	HVAC System Preparation, Refrigerant Mgmt & EPA-608 Prep, Refrigeration Service Engineer Society (HVAC), Residential Gas Heating, Residential Installation, Zero Net Energy
0946.10 - Energy Systems Technology	Building & Energy Systems Professionals, Building Commissioning Technician, Building Energy Consultant, Lighting and Controls Technology, Power Generation and Distribution, Residential Solar, Residential Solar Installation, Residential Solar Surveying & Planning, Solar Battery Storage Installation & Maint, Solar Site Planning Project, Solar Technician, Zero Net Energy, Zero Net Energy (ZNE), Zero Net Energy (ZNE) Technology
0952.00 - Construction Crafts Technology	Building Construction, Building Construction Technology, Construction Technology
0952.20 - Electrical	Electrician, Electrician Apprenticeship, Facility Maintenance
0953.00 - Drafting Technology	CADD Technician I, Computer-Aided Design and Drafting (CADD) Technician, Drafting Technician I, Drafting Technology, Engineering Drafting and Design, General Drafting
0953.10 - Architectural Drafting	Architectural CADD Technician I, Architectural Drafting and Design, Drafting Technician: Architectural
0957.00 - Civil and Construction Management Technology	Construction Management, Real Estate Development
0957.20 - Construction Inspection	Building Inspection, Building Inspection Technology, Construction Management, Construction Technology, Inspection Technology
0958.00 - Water and Wastewater Technology	Water Supply Technology, Water Technology
2102.10 - Public Works	Public Works

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • Basic Electrician Technician • Basic HVAC/R • Basic Residential Maintenance Technician • Basic Woodworking • Green Technician • Plumbing Technician • Photovoltaic Technician • Renewable Energy • Engineering Graphics

Exhibit B7. Health program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0514.20 – Medical Office Technology		*									*	*
1201.00 – Health Occupations, General				*	*		*					
1205.10 – Phlebotomy											*	
1208.00 – Medical Assisting						*						*
1210.00 – Respiratory Care-Therapy				*								*
1221.00 – Pharmacy Technology		*									*	
1225.00 – Radiologic Technology		*		*								
1227.00 – Diagnostic Medical Sonography							*					
1228.00 – Athletic Training and Sports Medicine		*			*					*		
1230.10 – Registered Nursing		*	*		*		*			*	*	*
1230.20 – Licensed Vocational Nursing		*	*		*				*	*		
1230.30 – Certified Nurse Assistant			*							*		
1230.80 – Home Health Aide			*									
1239.00 – Psychiatric Technician											*	
1240.10 – Dental Assistant		*				*						
1240.20 – Dental Hygienist						*						
1250.00 – Emergency Medical Services		*	*		*	*						*
1251.00 – Paramedic				*		*						*
1306.00 – Nutrition, Foods, and Culinary Arts		*		*	*		*			*	*	
1306.20 – Dietetic Services and Management		*									*	
1309.00 – Gerontology		*										
2104.40 – Alcohol and Controlled Substances					*				*		*	
Programs Not Offered in Region												

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Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
1202.00 – Hospital and Health Care Administration												
1205.00 – Medical Laboratory Technology												
1206.00 – Physicians Assistant												
1208.10 – Clinical Medical Assisting												
1208.20 – Administrative Medical Assisting												
1208.30 – Health Facility Unit Coordinator												
1209.00 – Hospital Central Service Technician												
1211.00 – Polysomnography												
1212.00 – Electro-Neurodiagnostic Technology												
1213.00 – Cardiovascular Technician												
1214.00 – Orthopedic Assistant												
1215.00 – Electrocardiography												
1217.00 – Surgical Technician												
1218.00 – Occupational Therapy Technology												
1219.00 – Optical Technology												
1220.00 – Speech-Language Pathology and Audiology												
1222.00 – Physical Therapist Assistant												
1223.00 – Health Information Technology												
1223.10 – Health Information Coding												
1224.00 – School Health Clerk												
1226.00 – Radiation Therapy Technician												
1230.00 – Nursing												
1240.00 – Dental Occupations												

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Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
1240.30 – Dental Laboratory Technician												
1261.00 – Community Health Care Worker												
1299.00 – Other Health Occupations												
1306.60 – Dietetic Technology												

TOP6 – Program Title	Regional Community College Program Titles
0514.20 - Medical Office Technology	Electronic Health Records, Inpatient Medical Coder Specialist, Medical Biller Specialist, Medical Coding and Billing, Medical Insurance Billing, Medical Office, Outpatient Medical Coder Specialist
1201.00 - Health Occupations, General	Public Health Science
1205.10 - Phlebotomy	Phlebotomy
1208.00 - Medical Assisting	Administrative/Clinical Medical Assisting, Medical Assistant, Medical Transcription
1210.00 - Respiratory Care/Therapy	Respiratory Care, Respiratory Therapy
1221.00 - Pharmacy Technology	Pharmacy Technician, Pharmacy Technology
1225.00 - Radiologic Technology	Radiologic Technology
1227.00 - Diagnostic Medical Sonography	Diagnostic Medical Sonography
1228.00 - Athletic Training and Sports Medicine	Athletic Trainer Aide, Exercise Sports and Wellness - Athletic Training Emphasis, Sports Medicine
1230.10 - Registered Nursing	Critical Care Nurse, Nursing, Nursing Licensure, Nursing VN to RN, Registered Nursing
1230.20 - Licensed Vocational Nursing	Nursing Vocational (VN), Vocational Nursing
1230.30 - Certified Nurse Assistant	Nurse Assistant, Nursing Assistant
1230.80 - Home Health Aide	Home Health Aide
1239.00 - Psychiatric Technician	Psychiatric Technology
1240.10 - Dental Assistant	Dental Assistant, Dental Assisting

TOP6 – Program Title	Regional Community College Program Titles
1240.20 - Dental Hygienist	Dental Hygiene
1250.00 - Emergency Medical Services	Emergency Medical Services, Emergency Medical Provider, Emergency Medical Services, Emergency Medical Technician, Emergency Medical Technician - I, Emergency Medical Technicians, Mobile Intensive Care Nurse
1251.00 - Paramedic	Emergency Medical Services, Emergency Medical Technician - Paramedic, Paramedic
1306.00 - Nutrition, Foods, and Culinary Arts	Nutrition and Dietetics, Nutrition and Food
1306.20 - Dietetic Services and Management	Dietetic Aide, Dietetic Service Supervisor
1309.00 - Gerontology	Caregiving Essentials, Community Caregiver, Gerontology
2104.40 - Alcohol and Controlled Substances	Alcohol and Drug Studies, Alcohol and Drug Studies (ADS Specialist 1), Alcohol and Drug Studies (ADS Specialist 2), Alcohol/Drug Studies

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • Home Health Aide • Medical Assisting Preparation Employment Concentration • Nursing Assistant • Nursing Assistant • Phlebotomy • Public Health Science

Exhibit B8. ICT/digital media program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0514.00 – Office Technology-Office Computer Applications	*	*	*		*		*	*		*	*	*
0602.00 – Journalism		*			*		*			*		
0604.00 – Radio and Television		*			*							
0604.10 – Radio		*										
0604.20 – Television (including combined TV-film-video)		*			*		*			*	*	
0612.20 – Film Production		*			*					*		

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Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0614.00 – Digital Media							*	*		*		*
0614.10 – Multimedia		*		*		*		*			*	
0614.20 – Electronic Game Design								*				
0614.30 – Website Design and Development		*	*	*								
0614.40 – Animation										*		*
0614.50 – Desktop Publishing			*					*		*		
0614.60 – Computer Graphics and Digital Imagery		*		*	*	*				*		
0701.00 – Information Technology, General				*						*		*
0702.00 – Computer Information Systems	*	*	*	*	*		*		*		*	*
0702.10 – Software Applications			*			*						
0707.00 – Computer Software Development										*		
0707.10 – Computer Programming		*	*			*		*		*	*	*
0707.20 – Database Design and Administration												*
0707.30 – Computer Systems Analysis						*						
0708.00 – Computer Infrastructure and Support		*	*	*		*				*		
0708.10 – Computer Networking		*	*			*				*	*	
0708.20 – Computer Support		*	*								*	
0709.00 – World Wide Web Administration						*				*		
0934.30 – Telecommunications Technology								*			*	
1005.00 – Commercial Music		*			*		*	*				
1012.00 – Applied Photography	*	*			*		*			*		
1030.00 – Graphic Art and Design										*	*	

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Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
2206.10 – Geographic Information Systems											*	
Programs Not Offered in Region												
0604.30 – Broadcast Journalism												
0607.00 – Technical Communication												
0610.00 – Mass Communications												
0699.00 – Other Media and Communications												
0709.10 – E-Commerce (technology emphasis)												
0799.00 – Other Information Technology												
1013.00 – Commercial Art												

TOP6 – Program Title	Regional Community College Program Titles
0602.00 - Journalism	Journalism
0604.00 - Radio and Television	Basic Radio Production, Broadcasting and Cinema
0604.10 - Radio	On-Air Radio Production
0604.20 - Television (including combined TV/Film/Video)	Basic Television Production, Film, Television and Electronic Media, Film, Television and Video Production Specialist, Film, Television, and Electronic Media, Film, TV, & Electronic Media, RTVF (TELEVISION), Screenwriting, Television and Video Picture Production
0612.20 - Film Production	Advanced Film Production, Basic Film Production, Film Production, Film, Television and Video Production Specialist: Film and Television Production Emphasis, Motion Picture Production, Post Production Editing
0614.00 - Digital Media	3D Game Modeling & Animation, Digital Animation Artist Maya, Digital Animation Technician I Maya, Digital Communication, Digital Media, Digital Media Employment Concentration, Expanded Animation Technician Maya, Game Development Core, Graphic Design and Digital Media
0614.10 - Multimedia	Design for Multimedia, Film, Television, and Electronic Media, Graphic and Media Design, Music Industry Studies: Audio Production, Simulation and Gaming
0614.20 - Electronic Game Design	Game Design
0614.30 - Website Design and Development	User Interface Design, Web Design, Web Development

TOP6 – Program Title	Regional Community College Program Titles
0614.40 - Animation	Art - Visual Communications - Animation, Art - Visual Communications - Illustration, Digital Animation Artist 3ds Max, Digital Animation Technician I 3ds Max, Expanded Animaton Technician 3ds Max
0614.50 - Desktop Publishing	Electronic Publishing and Design, Graphic Design, Graphic Design Technology
0614.60 - Computer Graphics and Digital Imagery	Applied Digital Media-Basic Graphic Design, Basic Graphic Design, Computer Assisted Graphic Design, Computer Graphic Design for Print Media, Digital Design & Production
0701.00 - Information Technology, General	Administration & Information Systems, IT Technician
0702.00 - Computer Information Systems	Android Application Security Support Specialist, CIT - Management Information Systems, Computer and Cyber Security Specialist (Security+), Computer and Network Specialist (Network+), Computer Business Information Systems, Computer Information Systems, Computer Science, Digital Forensics, Information Security and Cyber Defense, iOS Application Security Support Specialist, Management Information Systems, Network Specialist, Social Media Technician, Unix Administrator (Linux+), Web Application Security Support Specialist, Web Authoring
0702.10 - Software Applications	Computer Applications, Computer Information Systems
0707.00 - Computer Software Development	Coding Prep
0707.10 - Computer Programming	C++ Programming, Computer Game Development, Computer Programming, Computer Science, Game Programming, Java Programming, Programming Foundations, Programming I, Python Programming
0707.20 - Database Design and Administration	Mysql Database Developer, UNIX Administrator
0707.30 - Computer Systems Analysis	Information Assurance Auditing
0708.00 - Computer Infrastructure and Support	Cloud Technology Specialists, Computer Ethical Hacking Specialist, Computer Security Specialist, Cyber Security Analyst, Cyber Security Defender, Cyber Security Professional , Cybersecurity Specialist, Information Technology, IT Technician Pathway: Cyber Security Specialist, IT Technician Pathway: IT Systems Specialist
0708.10 - Computer Networking	Amazon Web Services (AWS) Cloud Computing, Cisco CCNA Examination Preparation Level 1, Cisco CCNA Examination Preparation Level 2, Cisco CCNA Examination Preparation Level 3, Cisco CCNA Examination Preparation Level 4, Cisco CCNA Security Examination Preparation, Cisco CCNP Examination Preparation Level 5, Cisco CCNP Examination Preparation Level 7, Cisco CCNP Examination Preparation Level 8, Cisco CCNP Examination Preparation Level 9, CISCO Networking, Computer Network Specialist/Net Training, Computer Network Supervisor, Computer Network Support Specialist, Information Security and Cyber Defense, Information Systems: Cyber-Skills, Information Technology, Introduction to Python Programming, Network Specialist
0708.20 - Computer Support	Computer Support Specialist, Computer Support Specialist, Computer Support Technician (A+ Certification Preparation)
0709.00 - World Wide Web Administration	Web Master - Web Designer , Web Master - Web Developer, Webmaster-Web Designer Concentration, Webmaster-Web Developer Concentration

TOP6 – Program Title	Regional Community College Program Titles
0934.30 - Telecommunications Technology	Communication Engineering Technology, Sound and Communication Systems Installer Apprenticeship
1005.00 - Commercial Music	Advanced Commercial Music, Audio Technology, Basic Commercial Music, Commercial Music, Music Industry Studies: Performance, Recording Arts Technician
1012.00 - Applied Photography	Applied Photography, Photography, Still Photography
1030.00 - Graphic Art and Design	Applied Digital Media-Basic Graphic Design, Basic Graphic Communication, Graphic Design, Motion Graphics and 3D Animation, Web and Multimedia Design
2206.10 - Geographic Information Systems	Geographic Information Systems

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • Digital Filmmaker • Digital Visual Effects Employment Concentration • Film, Television and Video Production Specialist: Basic Television Production • Graphic Design and Web Content • Graphic Design Employment Concentration • Video Production Employment Concentration • Visual Communication • Geographic Information Science • Geographic Information Science Employment Concentration • 3D Computer Animation • Computer Applications • Computer Forensics Employment Concentration • Computer Foundations • Computer Programming • Cybersecurity Employment Concentration • Information Technology Literacy • Internet Authoring • Internet Authoring Apprentice Employment Concentration • IT Technician Pathway: IT Systems Support and Sales • Java Programming • Management Information Systems • Networking • Programming • Web Page Developer

Exhibit B9. Life sciences/biotech program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
Programs Not Offered in Region												
0430.00 – Biotechnology and Biomedical Technology												
0934.60 – Biomedical Instrumentation												
0934.70 – Electron Microscopy												
0954.00 – Chemical Technology												
0955.00 – Laboratory Science Technology												

Exhibit B10. Public safety and government program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
2105.00 – Administration of Justice	*	*	*		*	*	*	*	*	*	*	*
2105.10 – Corrections	*	*				*				*	*	
2105.30 – Industrial and Transportation Security		*										
2105.40 – Forensics, Evidence, and Investigation										*		
2105.50 – Police Academy					*						*	
2133.00 – Fire Technology		*	*	*	*	*	*					*
2133.50 – Fire Academy				*	*	*						*
2199.00 – Other Public and Protective Services						*						
Programs Not Offered in Region												
2105.20 – Probation and Parole												

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
2133.10 – Wildland Fire Technology												

TOP6 – Program Title	Regional Community College Program Titles
2105.00 - Administration of Justice	Administration of Justice, Administration of Justice - Crime Scene Investigation, Administration of Justice/Law Enforcement Basic Peace Officer Academy Intensive, Administration of Justice/Law Enforcement Basic Peace Officer Modular Academy, Crime Scene Investigation, Criminal Justice, Leadership in Criminal Justice
2105.10 - Corrections	Administration of Justice/Basic Correctional Deputy Academy, Administration of Justice/Corrections, Correctional Science, Corrections
2105.30 - Industrial and Transportation Security	Homeland National Security
2105.40 - Forensics, Evidence, and Investigation	Administration of Justice - Crime Scene Investigation, Investigative Assistant
2105.50 - Police Academy	Basic Peace Officer, Modular Basic Peace Officer, Police Science, Reserve Police Officer
2133.00 - Fire Technology	Chief Officer, Fire Prevention Inspector, Fire Service Leadership, Fire Technology, Fire Technology: Professional Firefighter
2133.50 - Fire Academy	Basic Fire Fighter, Fire Fighter, Firefighter Academy, Firefighter I Basic Training Academy
2199.00 - Other Public and Protective Services	Administration of Justice/Basic Public Safety Dispatch

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • Corrections Employment Concentration • Emergency Medical Technician (EMT) Advanced Employment Concentration • Emergency Medical Technician (EMT) Employment Concentration • Fire Academy Preparation Employment Concentration • Fire Instructor 1 • Fire Instructor 2 • Legal Administrative Professional • Police Technician Specialist • Private Security and Loss Prevention Employment Concentration

Exhibit B11. Retail, hospitality, and tourism program inventory

Programs	Barstow	Chaffey	Copper Mountain	Crafton Hills	College of the Desert	Moreno Valley	Mt. San Jacinto	Norco	Palo Verde	Riverside City	San Bernardino Valley	Victor Valley
0506.50 – Retail Store Operations and Management		*		*	*			*			*	
0514.40 – Office Management		*								*		
0835.70 – Aquatics and Lifesaving					*							
1302.00 – Interior Design and Merchandising		*										
1303.10 – Fashion Design		*										
1303.20 – Fashion Merchandising		*										
1306.30 – Culinary Arts		*	*		*		*			*	*	
1307.00 – Hospitality		*			*							
1307.10 – Restaurant and Food Services and Management		*									*	*
1307.20 – Lodging Management		*										
1307.30 – Resort and Club Management					*							
Programs Not Offered in Region												
0509.60 – Display												
0516.00 – Labor and Industrial Relations												
0606.00 – Public Relations												
0959.10 – Diving and Underwater Safety												
1301.00 – Family and Consumer Sciences, General												
1301.10 – Consumer Services												
1303.00 – Fashion												
3008.00 – Dry Cleaning												
3009.00 – Travel Services and Tourism												
3020.40 – Flight Attendant												

TOP6 – Program Title	Regional Community College Program Titles
0506.50 - Retail Store Operations and Management	Retail Management, Retail Management (WAFC)
0514.40 - Office Management	Executive Office Management, Professional Administrative Management
0835.70 - Aquatics and Lifesaving	Lifeguard Training, Water Safety Instructor
1302.00 - Interior Design and Merchandising	Interior Design, Interior Design Visual Communication
1303.10 - Fashion Design	Fashion Design, Patternmaking for Apparel
1303.20 - Fashion Merchandising	Fashion Merchandising
1306.30 - Culinary Arts	Baker, Baking, Baking and Pastry, Baking Business, Basic Culinary Arts, Bread Baker, Culinary Arts, Culinary Management, Food Preparation, Food Service, Intermediate Culinary Arts, Prep Cook, Professional Baking and Patisserie , Restaurant Service
1307.00 - Hospitality	Event Planning, Hospitality Management
1307.10 - Restaurant and Food Services and Management	Hospitality Management: Food Service, Professional Baking and Management, Restaurant Management
1307.20 - Lodging Management	Hospitality Management: Hotel Management
1307.30 - Resort and Club Management	Golf Management

Regional Community College Programs Without TOP Codes
<ul style="list-style-type: none"> • Food Service Career and Certification Preparation • Industrial Sewing

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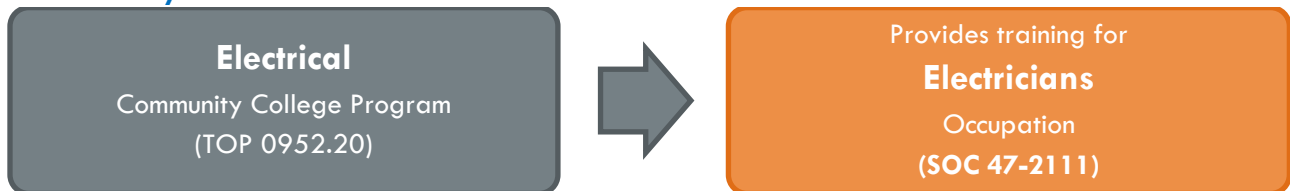
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Electrical

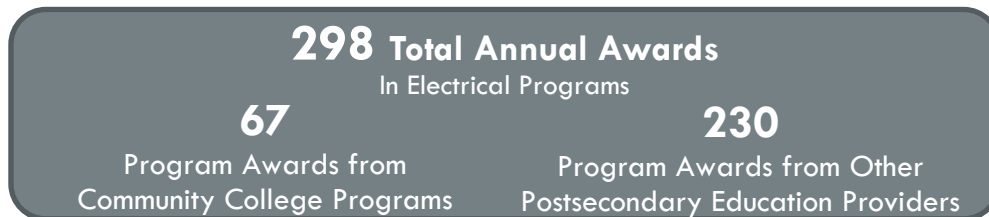
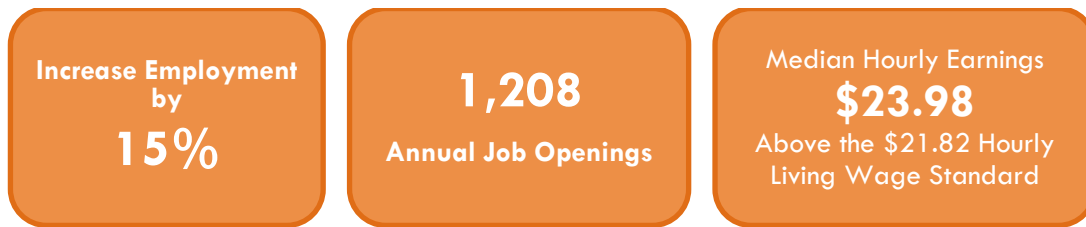
Inland Empire/Desert Region (Riverside and San Bernardino counties)

This workforce demand report uses state and federal job projection data developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to verify their current employment needs.

Summary



Over the next five years (2021-2026), employment for electricians is projected to



The Inland Empire/Desert Centers of Excellence

 **Recommends**

Electrical Program Expansion
to meet the need for more workers in the region

Introduction

California Community College electrical programs (TOP 0952.20) prepare students for employment through the instruction of the installation, operation, maintenance, and repair of electrical systems in buildings, including residential, commercial, and industrial electric power wiring and motors, controls, and electrical-distribution panels (Taxonomy of Programs, 2012). The knowledge, skills, and abilities trained by electrical programs lead to the following occupation.

Electricians (47-2111)

Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems.

Sample job titles: Control Electrician, Industrial Electrician, Inside Wireman, Maintenance Electrician, Mechanical Trades Specialist, Wireman

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: Apprenticeship

Work Experience: None

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 47%

In 2021, there were 8,634 electrician jobs in the region. Employment for electricians is projected to increase by 15% through 2026; 1,208 job openings are expected annually. Exhibit 1 displays the job counts, five-year projected job growth, job openings, and the share of incumbent workers aged 55 years and greater in the region.

Exhibit 1. Five-year projections for electricians, Inland Empire/Desert Region, 2021-2026

Occupation	2021 Jobs	2026 Jobs	5-Yr % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Electricians	8,634	9,955	15%	6,042	1,208	21%

Source: Lightcast 2022.2

An online job ad search for electrical jobs was conducted to reveal the employers seeking these workers, including the time it takes to fill positions, earnings information, and in-demand skills. Exhibit 2 shows the number of job ads posted during the last 12 months, July 2021 through June 2022, and the regional and statewide average time to fill these jobs. On average, employers in the local region fill online job ads for electricians in 34 days, three days shorter than the statewide average time to fill. Time to fill information indicates that employers in the region likely face similar challenges filling open positions as other employers in California.

Exhibit 2. Job ads and time to fill, Inland Empire/Desert Region, July 2021 through June 2022

Occupation	Job Ads	Regional Average Time to Fill (Days)	Statewide Average Time to Fill (Days)
Electricians	366	34	37

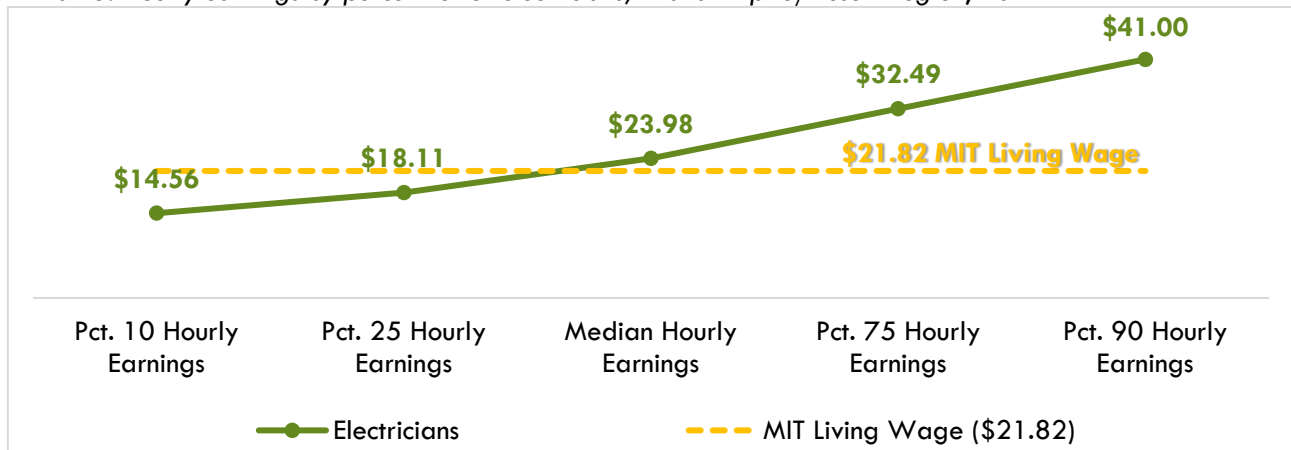
Source: Burning Glass – Labor Insights

Earnings and Benefits

Community colleges should ensure their training programs lead to employment opportunities that provide a living wage. The MIT living wage calculator estimates that an individual must earn \$21.82 per or \$45,386 annually in California (Glasmeier, 2022).

Exhibit 3 displays the hourly earnings for electricians. The median hourly earnings for electricians are above the living wage standard, indicating that at least 50% of workers earn a living wage.

Exhibit 3. Hourly earnings by percentile for electricians, Inland Empire/Desert Region, 2021



Source: Lightcast 2022.2

Benefits information, provided in the occupational guides developed by the California Labor Market Information Division, reveals that benefits for electricians vary widely from company to company. Electrical workers may receive paid holidays, vacation, and health insurance. The type of benefits package is determined by company policy or union contract. Self-employed electrical workers need to provide their own benefits (Detailed Occupational Guides, 2022).

Advertised Salary from Online Job Ads

Exhibit 4 displays online job ad salary data for electricians over the last 12 months. Online job ad salary information reveals that employers are willing to pay electricians an average annual salary of \$66,000, above the region's \$45,386 annual (\$21.82 hourly) MIT living wage standard. Consider the salary information with caution since only 45% (166 out of 366) of online job ads for this occupation provided salary information. The salary figures are prorated to reflect full-time, annual earnings status.

Exhibit 4. Advertised salary information, Inland Empire/Desert Region, July 2021 through June 2022

Occupation	Number of job ads	Real-Time Salary Information				Average Annual Salary
		Less than \$35,000	\$35,000 to \$49,999	\$50,000 to \$74,999	More than \$75,000	
Electricians	166	3%	10%	70%	17%	\$66,000

Source: Burning Glass – Labor Insights

Employers, Skills, Education, and Work Experience

Exhibit 5 displays the employers that posted the most job ads during the last 12 months. Displaying employer names provides insight into where students may find employment after completing a program. Sunrun posted the most job ads for electricians in the region.

Exhibit 5. Employers posting the most job ads for electricians, Inland Empire/Desert Region, July 2021 through June 2022

Occupation	Top Employers	
Electricians (n=360)	<ul style="list-style-type: none"> Sunrun SunPower Corporation State of California 	<ul style="list-style-type: none"> Motive Companies MasTec Inc Rogers Electric Services

Source: Burning Glass – Labor Insights

Exhibit 6 lists a sample of specialized and employability skills employers seek when looking for workers to fill electrician positions. Specialized skills are occupation-specific skills that employers request for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is often referred to as "soft skills." The skills requested in job ads may be utilized to guide curriculum development.

Exhibit 6. Sample of in-demand skills from employer job ads, Inland Empire/Desert Region, July 2021 through June 2022

Occupation	Specialized skills	Employability skills
Electricians (n=347)	<ul style="list-style-type: none"> Repair Electrical Systems Wiring Hand Tools Schematic Diagrams 	<ul style="list-style-type: none"> Troubleshooting Physical Abilities Communication Skills Problem Solving Teamwork/Collaboration

Source: Burning Glass – Labor Insights

Exhibit 7 displays the typical entry-level education, educational attainment, and minimum advertised education requirements for electricians. According to the Bureau of Labor Statistics, 47% of incumbent workers in this field hold a community college-level of educational attainment; "some college, no degree," and an "associate degree." Approximately 95% of job ads for electricians sought candidates with a high school diploma or vocational training.

Exhibit 7. Typical entry-level education, educational attainment, and minimum advertised education requirements, Inland Empire/Desert Region, July 2021 through June 2022

Occupation	Typical Entry-Level Education Requirement (National)	CC-Level Educational Attainment* (National)	Number of Job Ads	Real-Time Minimum Advertised Education Requirement		
				High school or vocational training	Associate degree	Bachelor's degree or higher
Electricians	High school diploma or equivalent	47%	176	95%	5%	-

Source: Lightcast 2022.2, Burning Glass – Labor Insights

*Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework

Exhibit 8 displays the work experience typically required for electricians and the real-time work experience requirements from employer job ads. Approximately 52% of employers sought electricians with three to five years of previous work experience.

Exhibit 8. Work experience required and real-time work experience requirements, Inland Empire/Desert Region, July 2021 through June 2022

Occupation	Work Experience Typically Required	Real-Time Work Experience			
		Number of job ads	0 – 2 years	3 – 5 years	6+ years
Electricians	None	233	39%	52%	9%

Source: Lightcast 2022.2, Burning Glass – Labor Insights

Student Completions and Programs Outcomes

Exhibit 9 displays student completions for electrical (TOP 0952.20) programs over the last three academic years (2018-21). In the previous three academic years, regional community colleges have issued 67 awards annually in electrical programs. Program completion and student outcome methodologies are found in the appendix.

Exhibit 9. Annual average community college awards for electrical programs, Inland Empire/Desert Region, Academic Years 2018-2021

TOP 0952.20 – Electrical (Local Program Title)	Academic Year 2018-19	Academic Year 2019-20	Academic Year 2021-21	Total CC Annual Average Awards, Academic Years 2018-21
Barstow (Residential Electrical)				0
Associate Degree	-	-	-	0
Norco College (Electrician, Electrician Apprenticeship, Facility Maintenance)				67
Associate Degree	2	6	5	4
Certificate 30 < 60 semester units	95	19	63	59
Certificate 18 < 30 semester units	11	0	0	4
Victor Valley				0
Certificate 6 < 18 semester units	0	0	1	0
Total	108	25	69	67

Source: MIS Data Mart, COCI

California program outcome data may provide a useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibit 10. Approximately 80% of electrical program completers and skills-builders students attained a living wage.

Exhibit 10. 0952.20 – Electrical strong workforce program outcomes, Inland Empire/Desert Region, Academic Year 2018-2019 (Unless Noted)

Strong Workforce Program Metrics: 0952.20 – Electrical	Inland Empire/Desert Region	California Region
Unduplicated count of enrolled students (2019-20)	614	9,042
Completed 9+ career education units in one year (2019-20)	65%	28%
Perkins Economically disadvantaged students (2019-20)	64%	61%
Students who attained a noncredit workforce milestone in a year (2019-20)	-	67%
Students who earned a degree, certificate, or attained apprenticeship (2019-20)	44	645
Transferred to a four-year institution (transfers)	-	26
Job closely related to the field of study (2017-18)	94%	84%
Median annual earnings (all exiters)	\$47,148	\$54,712
Median change in earnings (all exiters)	79%	52%

Strong Workforce Program Metrics: 0952.20 – Electrical	Inland Empire/Desert Region	California
Attained a living wage (completers and skills-builders)	80%	72%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Exhibit 11 displays awards other postsecondary education providers reported in electrician programs (CIP 46.0302). Completion data is compiled from the Integrated Postsecondary Education Data System (IPEDS) for the most recent three years. Five other regional postsecondary education providers issued 230 awards annually over the last three academic years.

Exhibit 11. Other educational providers electrician programs, three-year annual average credentials, Inland Empire/Desert Region, Academic Years 2017-2020

46.0302 - Electrician	Award <1 year	Postsecondary awards	Associate Degree	Other Educational Providers Annual Average Credentials,
InterCoast Colleges-Riverside	-	38	-	38
San Joaquin Valley College-Ontario	-	39	7	46
San Joaquin Valley College-Rancho Mirage	-	-	-	0
San Joaquin Valley College-Temecula	-	22	2	23
Summit College	123	-	-	123
Total	123	99	8	230

Source: IPEDS

Summary of Findings

The knowledge, skills, and abilities trained by electrical programs (TOP 0952.20) lead to the electricians occupation. Electricians are projected to have 1,208 annual job openings and increase employment by 15% over the next five years. The median earnings for electricians is \$23.98 per hour, above the living wage standard for the region (\$21.83 per hour). This indicates that at least 50% of workers in this occupation earn a living wage.

Community college electrical programs have issued 67 awards annually over the last three academic years. Other postsecondary education providers have issued 123 awards annually in programs related to electrical. Combined, education providers in the region have issued 191 awards annually in electrical programs over the last three academic years.

The Centers of Excellence recommends expanding electrical programs to meet the regional demand for more workers. Colleges considering this program should partner with relevant employers and confirm their demand for electricians and the skills needed for students to secure work in this field shortly after exiting the program.

Contact

Michael Goss
Paul Vaccher
Centers of Excellence, Inland Empire/Desert Region
michael.goss@chaffey.edu
July 2022

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Appendix: Methodology

Exhibit 9 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2018 and 2021 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total of associate degrees and certificates issued during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variations that might be present in a single year.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from California's Employment Development Department's Unemployment Insurance database records. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2022a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS), administered by Santa Rosa Junior College (LaunchBoard, 2022a).

Job ad data is limited to the information provided by employers and the ability of artificial intelligence search engines to identify this information. Additionally, preliminary calculations by Georgetown Center on Education and the Workforce found that "just 30 to 40 percent of openings for candidates with some college or an associate degree, and only 40 to 60 percent of openings for high school diploma holders appear online" (Carnevale et al., 2014). Online job ads often do not reveal employers' hiring intentions; it is unknown if employers plan to hire one or multiple workers from a single online job ad or collecting resumes for future hiring needs. A closed job ad may not be the result of a hired worker.

Table 1. 2021 to 2026 job growth, wages, entry-level education, training, and work experience required for electricians in the Inland Empire/Desert Region (Riverside and San Bernardino Counties combined)

Occupation (SOC)	2021 Jobs	5-Year Change	5-Year % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage (10 th to 90 th percentile)	Median Hourly Wage (50 th percentile)	Average Annual Earnings	Entry-Level Education & On-The-Job-Training	Work Experience Required
Electricians (47-2111)	8,634	1,322	15%	1,208	\$14.56 to \$41.00	\$23.98	\$56,300	High school diploma or equivalent & Apprenticeship	None

Source: Lightcast 2022.2